

Canon

Broadcast Television Lens



INNOVATION
In TV Optics Since 1958

2009

Table of Contents

Goal:Customer Satisfaction.....3

Philosophy.....4

Canon's Epoch-making Technologies..5~11

Studio/Field Lenses.....12~20

Specifications.....13

Features;DIGISUPER Series Lenses17

Control Accessories19

Lens Mount Compatibility20

Broadcast ENG/EFP Lenses.....21~38

Specifications (HJ Series)22

Specifications (J Series)24

Specifications (KJ Series, with extender 2/3")27

Specifications (KJ Series, with extender 1/2")28

Specifications (KJ Series, without extender).....29

Vari-angle Prism Optical Image Stabilizer.....30

Features;Digital Drive ENG/EFP lenses31

Control Accessories33

Lenses for Digital Electronic Cinematography.....37

Pro-video Lenses.....39~41

Specifications (KRS/IRS Lenses)40

Control Accessories (KRS/IRS Lenses).....41

Remote Control Lenses.....42~43

Specifications42

Control Accessories43

Optical Accessories for ENG/EFP and Pro-video Lenses...44~47

Understanding The Lens Model Number

(ENG/EFP Lens)

HJ 40x 10 B I A S D -V

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

XJ 100x 9.3 B IE -D

(STUDIO/FIELD Lens)

① Image Size	J	ENG/EFP Lens for 2/3"
	YJ	Pro-video Lens for 2/3"
	H	ENG/EFP Lens for 1/2"
	YH	Pro-video Lens for 1/2"
	HJ	High Definition Portable Lens for 2/3"
	KJ	High Definition Portable Lens for 2/3"(HDgc Series)
	KH	High Definition Portable Lens for 1/2"(HDgc Series)
	KT	High Definition Portable Lens for 1/3"(HDgc Series)
	PJ	Studio/Field Lens for 2/3"
	UJ/XJ	High Definition Studio/Field Lens for 2/3"

② Zoom Ratio

③ Focal Length
at Wide-End

④ Optical Compensation B with Optical Compensation
for Prism Cameras (not shown with 1/2" models)

⑤ Built-in Extender
IE Built-in Extender
I Built-in Extender
K No Extender
V Built-in 0.8X Shrinker
W Built-in 0.8X Shrinker and 2X Extender

⑥ Zoom/Focus Control
R Zoom:Servo/Manual Focus:Manual
A Zoom:Servo/Manual Focus:Servo/Manual
T Zoom:Servo Focus:Servo
L Zoom:Manual Focus:Manual

⑦ Iris Control
S Iris Servo
L Iris Manual

⑧ Special Function(1)
D Digital Servo Drive for Portable Lens
E Digital Servo Drive With Rotary Encoder
(Blank) Analog Servo Drive for Portable Lens

⑨ Special Function(2)
V Built-in Image Stabilizer for Portable Lens
SC Cine Style Lens
D DIGISUPER Series for Studio/Field Lens
AF Auto Focus Function

Customer Satisfaction

Canon is committed to total C.S. (Customer Satisfaction).

In order to optimize C.S., our aim is to support users by developing of new lens technologies, high-quality technical service systems, and other sales support.

The ISO-14001 Certification and Emmy Award are just two examples of our C.S. Activities.



ISO-14001

ISO-14001

Canon placed priority on obtaining ISO-14001 certification for manufacturing bases, since these facilities have greater environmental impact.

The Canon Broadcast Equipment Group manufacturing bases obtained ISO-14001 certification in 1997.



Emmy Award

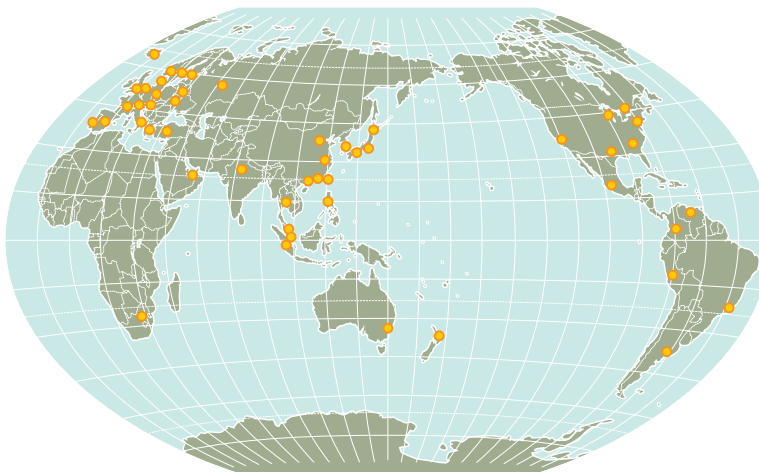
The National Academy of Television Arts and Sciences awarded Canon an EMMY® in recognition for its engineering creativity in Lens Technology Developments for Solid State Imager Cameras in High Definition Formats in 2005. Canon was also given an EMMY® for “Implementation In Lens Technology to Achieve Compatibility with CCD Sensors” in 1996.



INNOVATION
In TV Optics Since 1958

It was 50 years ago that Canon introduced the first BCTV lens. Labeled the “Field Zoom IF-1,” this lens featured a 6.7x zoom range, which was the highest in the industry at the time. Since that time, Canon has energetically advanced the art of high-end optical design on many fronts in close collaboration with international broadcasters and producers in an unceasing pursuit of product innovation and customer satisfaction. While celebrating the 50th anniversary of servicing the broadcast industry, Canon has been expanding its BCTV manufacturing and working diligently to develop exciting new products for high-end imaging in the 21st century.

CANON'S WORLDWIDE SUPPORT NETWORK



Well trained sales people and/or service technicians are ready to support you at these locations.

What are Canon's objectives...

Canon has always developed new technologies while remaining consistent with three main objectives; “High Quality of Picture,” “Ease of Operation” and “High Specifications”.

Now, Canon has added a new important fourth objective: “Minimizing Environmental Impact” of our products. It is Canon's policy to not pollute the Earth and through research, we are quickly reducing our impact on the environment even further.

These principles are upheld with every new TV lens we introduce. For example, we will not develop a product nor will we accept the production of a high-specification and high-quality lens if it does not offer ease of operation, especially in terms of its size and weight. Additionally, it would be impossible to keep our great ease of operation and quality of picture while offering our state-of-the-art zoom ratio and wide angle without updating our technologies. Canon has always developed the world's most advanced technologies, and our four “objectives” drive us to do so in a way that keeps us at the forefront of the industry while embracing environmental responsibility. Additionally, Canon's philosophy of technology leadership would be meaningless without also optimizing Customer Satisfaction.

The next pages demonstrate Canon's history of lens development and our adherence to the objectives.



Auto Focus Technology

DIGISUPER 100AF DIGISUPER 86AF DIGISUPER 27AF

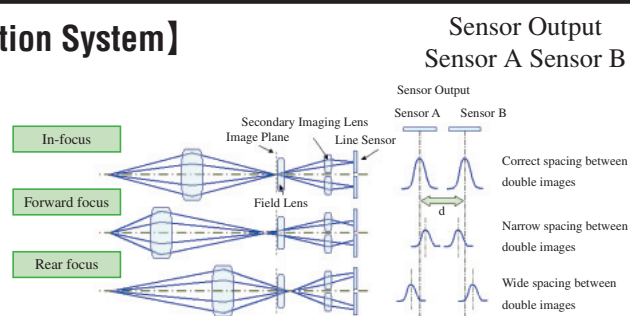
This article refers to Auto Focus Technology for DIGISUPER HDTV Zoom Lenses employed in the listed lenses. The specification of the listed lenses are shown in page 13, 14 and 15.

Recently there has been a greater demand for broadcast HDTV production and the requirement for accuracy in focusing has risen in response to this demand. Canon has been and continues to be a pioneer in the design of broadcast lenses and meets this demand with the introduction of a revolutionary HDTV Auto Focus System. This technology assists professional camera operators in concentrating on the action/beauty shots while maintaining the images in focus. Canon's advanced Auto Focusing for the DIGISUPER HDTV Zoom Lens employs the TTL-Secondary Image Registration Phase-detection system, originally developed for single-lens reflex still cameras, in order to pursue both high accuracy and a high tracking capability for broadcast HDTV.



【TTL-Secondary Image Registration Phase-detection System】

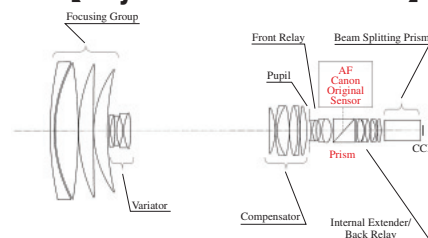
The light transmitting through a pair of the secondary imaging lenses focuses on separate sensors. The following figure illustrates this state of focusing. The TTL-Secondary Image Registration Phase-detection System determines the positional relationship between the two images (Refer to "d" in figure) to detect the amount and direction of defocusing.



Features

- Extremely high focusing accuracy in full HDTV specifications
- Ability to focus from a completely de-focused status without hunting
- Ability to focus on a high speed moving object
- Size and position of the AF frame (target area) in the camera VF can be changed from the Focus Demand FDJ-P31/P41.
(The size of the AF Frame can be changed in 3 steps)
- * Please confirm the AF camera-lens interface with your camera manufacturer of choice
- The AF system's two operation modes is the answer to a professional camera operator's various demands.

【Layout of the elements】



【Changeable AF frame】



【2 kinds of AF Operation Modes with ACTIVE/HOLD switch】

Mode	FULL TIME AF	PART TIME AF
How AF works	Usually activated Focus position is locked while the SW is pushed.	Usually off. Activated while the SW is pushed.
Recommended Application	Sporting event etc. To follow a moving object.	Studio production etc. To confirm the best focus position.

e-IFxs and e-HDxs Technology

HDXS / **e-IFxs** / **e-HDxs** / **HDGC**

In 2004, Canon introduced a new broadcast lens technology, **e-IFxs**, by launching the J22ex7.6B. Canon is pleased to offer complete series of **e-IFxs** and **e-HDxs** lenses.

The **e-IFxs** / **e-HDxs** technology consists of two applicable meanings for the letter “e”. One is the “ecological design,” as these lenses are harmless to the environment. The other is the “enhanced digital” technology, which improves the performance of the digital drive unit. Also, all of these advantages are included in the new **HDGC** (IRSE / IASE model) and the **HDXS** lenses.

Enhanced Digital Drive

The **HDXS**, **e-IFxs** and the **HDGC** (IRSE / IASE model) series are equipped with an information display and a digital function selector, an X-Y axis switch, so that the user can customize the enhanced digital functions much more easily and precisely. The new design enables the user to fully bring out the digital functions.

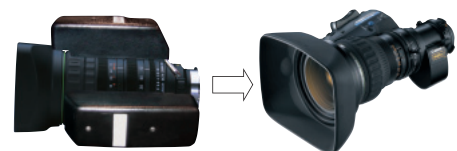
- User settings are both simple and easy to operate. User settings included: speed preset, frame presets (now 2 memory positions), shuttle shot, zoom track, new focus preset with IASD/IASE lens.
- Follow signal display for iris, zoom and focus (IASD/IASE only) for virtual reality, robotic control and other uses.
- User settings for zoom and focus curve mode for precise control based upon the user's requirement.
- AUX 1 and AUX 2 switches can be assigned for basic functions giving enhanced memory capability.
- A precise movement mode can be memorized for the zoom seesaw control, zoom demand control and preset control.
- The drive unit can memorize 9 patterns of user-customized settings and also transmit the data between different drive units.
- The self diagnostic mode provides error message, if necessary.



Information Display

Rotary Encoder

Canon offers a series of **HDXS** / **e-IFxs** / **HDGC** (IRSE / IASE model) lenses, which are equipped with an enhanced digital drive unit. Conventional potentiometers are analog positional sensors capable of only 8-10 bit equivalent resolution. Thus virtual ENG studio systems called for an optional Encoder Unit to be put on the zoom and focus ring of the lens. With the introduction of 16 bit resolution Rotary Encoder Devices built into the new enhanced digital drive unit, the lens can simply be integrated into a virtual digital studio system without any additions. The encoders also enable superior precise control. The zoom servo provides a dynamic range of 0.5 sec. to over a 5 min. super slow zoom. Repeatability in focus and iris control are also much more precise. Canon's unique technology has made the Encoder Device surprisingly small to be installed in the existing drive unit without changes in size or weight.



Lens with the Optional Encoder Unit

Lens with Encoder Device included in the drive unit

Ecological Design

It is Canon's policy to not pollute the Earth and, through research, we are quickly reducing our impact on the environment even further.

The **HDXS** / **e-IFxs** / **HDGC** series have avoided using any materials or substances that could pollute the environment.

The optical parts, featuring lead free glass, are designed to be completely non-polluting and the mechanical parts are virtually free of all harmful products to the earth, such as cadmium, PBBS*, PBDPE* or mercury.



Lead Free Glass

*PBBS: Poly Bromo Bi Phenyls

*PBDPE: Poly Bromo Di Phenyl Ethers

New Ergonomic Drive Unit

With the launch of the HJ14ex4.3B, Canon introduced a totally new design of the digital drive unit. Refined by long-term market research and worldwide experience, Canon mobilized the latest in 3D CAD-CAM design to significantly improve the human tactile interface to the control of zoom, iris, and focus. Here are some results of Canon's research:

Reduced Physical Stress

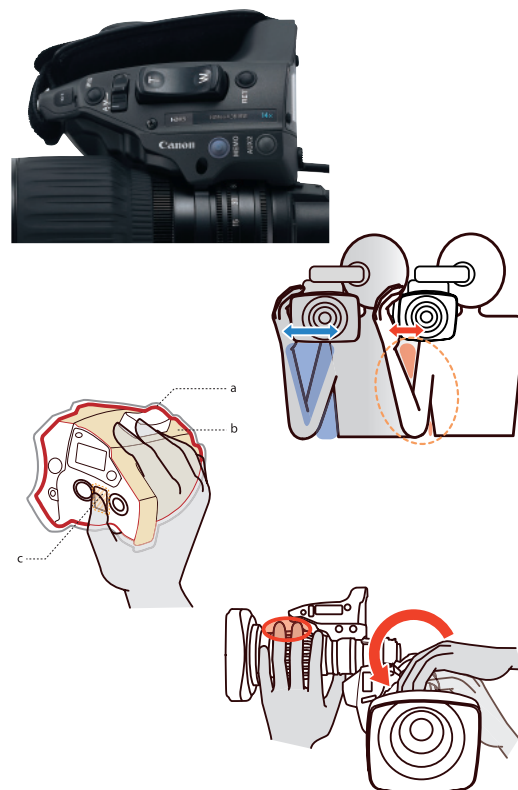
By reducing the width of the drive unit, the palm of the camera operator's hand is positioned closer to the optical axis, thus reducing the degree of arm bend which in turn lessens physical stress during prolonged shooting.

Ergonomic Design

The size and curvature size have been optimized to more comfortably fit in the palm of the operator's hand (a). Newly developed coatings improve the tactile interface between the user and the drive unit (b) together with the new Rubber Grip Support (c).

Improved Ease of Operation

The spacing between the focus ring and drive unit has been changed to avoid accidental interference with the drive unit while manipulating the focus control.



HDgc Series

HDGC

The details of the HDgc Series Lenses are shown on Page 26-29.

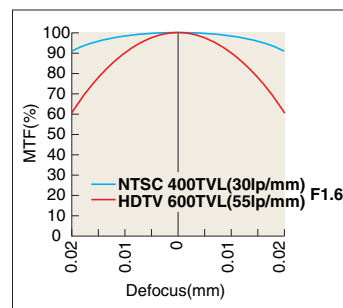


Concept of the HDgc Series

Corresponding to the popularity of digital High Definition broadcasting and diversity of HDTV equipment, Canon has added a new series to its HDTV lens line up, the HDgc series. The new HDgc series supports the emergence of an important new generation of cost-effective HD acquisition systems. Adopting the advantages created by Canon's unique technology, the new HDgc lenses exhibit high MTF, high resolution and high contrast from the center of the image to its extreme edges, meanwhile maintaining its compact size and weight.

Compared to the SDTV Lenses, the HDgc Series are...

In the HDTV system the pixel size is about half. Therefore, the spread of a point image caused by a spherical aberration, coma etc. should be diminished to about half. The MTF varies as the focus changes and even if the image is slightly out of focus, the MTF is greatly influenced as shown in Graph 1. The HDgc Lenses are specially designed to use optical elements that are effective in further minimizing chromatic aberrations, such as "Hi UD Glass", "Aspherical Elements" and other special elements. The HDgc lenses greatly contribute to correcting and minimizing these aberrations at the same time maintaining high MTF throughout the edge of the picture.



< Graph 1 >

Quality of the HDgc Series

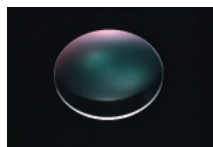
The HDgc Series lenses are based upon Canon's latest design concepts which support the new generation of cost-effective HD acquisition systems. The HDgc lenses are designed to meet the specific bandwidth frequency (or the number of scanning lines) of these new HD camera systems and at the same time to offer an excellent performance-cost optimization.

	SD		HDgc
Test Frequency of Broadcast Camera	320 TV Lines / 4MHz	up to 640TV Lines / 8MHz	up to 800TV Lines
Test Frequency of Broadcast Lens	24Lines / mm	up to 48Lines / mm	up to 74Lines / mm
Actual Canon Resolution of Broadcast Lens	up to 75Lines / mm		up to 100Lines / mm

Special Optical Elements and The Best Optical Layout (X-Element and The Power Optical System)

HDxs / **HDXS** / **eIFxs**

The XS-series lenses are shown with either of these legends on page 12-16 and 21-25.



Hi-UD Glass



Green Ring

Canon has always made an effort to research special elements since our beginnings in this industry with the goal of minimizing chromatic aberration. These efforts have included an artificially re-crystallized “Fluorite”, with extraordinary dispersion characteristics and the newly developed “Hi-UD” (high index ultra low dispersion) glass. Canon has succeeded in the practical use of special elements along with advanced design techniques like “separate achromatism”. Canon TV zoom lenses carry a “Green Ring” on the focus barrel, a symbol of our high quality.

Canon has developed a break through in optical design technology known as the “Power Optical System” whose heart is the “X-Element”. By using the “X-Element” to its maximum power in the specially designed optical layout, higher specifications and quality can be achieved in smaller and lighter lenses. The lenses designed using the “Power Optical System” are known as the “XS-series”.

Internal Focusing System/Ergonomic Lens Design



Canon was the first manufacturer to apply IF (Internal Focus) technology for use in high quality broadcast ENG/EFP zoom lenses, first with the J8x6B wide-angle zoom lens and then with the world's bestseller, the J14x8.5B standard lens. The advantages include lower distortion, minimized chromatic aberration and strong protection from dust and condensation in a compact and lightweight package. At the same time, we created ease of operation with the introduction of a fixed front element, square hood and an ergonomic grip angled at 12.5°. Since those first IF lenses, Canon has developed a complete series of IF zoom lenses. The original IF technology evolved into the IF+ (plus) series and then into the IFxs series. Simultaneously, the High Definition lens series, HDxs, and the Pro-video lens series, IFpro were developed. We now offer the e-IFxs/e-HDxs series, as well as with the new HDxs and HDgc series.

Digital Technology

DIGI SUPER

The Studio/Field lenses with the “DIGISUPER” system are shown with this legend on page 12-16. Also the unique features are explained on page 17 and 18.

HDXS / **eIFxs** / **HDGC** / **DIGITAL DRIVE**

The broadcast ENG/EFP lenses with the Digital System are shown with this legend on page 21-29. Also the unique features are explained on page 31 and 32.

In 1995, Canon released the DIGISUPER 70 for Studio/Field applications and at the same time introduced digital technology for broadcast zoom lens control to the television industry thus opening up new possibilities for the future. Digital control technology offered improvements by more precise control of lens groups, personalized lens control and the ability to interface with other digital devices. Since then, digital technology has experienced a big evolution and today, Canon offers the most advanced second generation DIGISUPER lens series and the newly developed zoom/focus demands.

Canon's newest advancement in digital technology,

“enhanced e-IFxs/e-HDxs”, features have been applied to the HDxs/e-IFxs/HDgc (IRSE / IASE model) series of ENG/EFP zoom lenses, while “Digital Drive” continues to be used on other models. With HDxs/e-IFxs/HDgc (IRSE / IASE model) and “Digital Drive”, the lens servo unit is now digital and offers such unique new “Useful” features as: Shuttle Shot, Speed Preset and Frame Preset.



Deployment of Longer, Wider, More Sensitive Lens Series

Canon previously released several lenses in succession, the J13x9BII in the early 80's, which became the world's standard ENG/EFP lens, the J18x9B in 1984 and in 1985, the J8x6B. These lenses became the first example of what is today the standard series of ENG/EFP lenses composed of a Telephoto, Standard and Wide zoom lens. This SDTV standard series has been repeated several times as new lenses were developed and today it consists of the J22ex7.6B, the J17ex7.7B and the J11ex4.5B. With the current SDTV series as well as with the HDTV series, Canon has developed longer, wider and more sensitive lenses that are approximately the same size and weight as the very first series with vastly improved specifications.

In Studio/Field category lenses, Canon developed the first 40x high zoom ratio lens in 1982 and since then has cleared hurdle after hurdle, breaking new ground by introducing the world's first 50x and world's first 70x lenses.

Then, we introduced our highest achievement to date, the DIGISUPER 86 xs and DIGISUPER 86 TELE xs, the world's first lens in the 80x range. Typical of Canon, this lens has solved the problem of image shake that would have limited the 86x zoom ratio with our unique built-in "Optical Image Stabilizer".

Amazingly, the 86x exhibits improved specifications and employs the "Optical Image Stabilizer" in a package the same size and weight as previous lenses.

Recently, Canon proudly introduced the world's first triple digit zoom lens, the DIGISUPER 100 xs, with "Optical Image Stabilizer" and a 100 times zoom ratio.

Our goal at Canon is to pursue our philosophy with unique ideas and the most advanced technologies thus allowing us to contribute to the expansion of our ever-changing industry.



DIGISUPER 100 xs
Launched in 2002



DIGISUPER 70
(The first lens in the 70x range was launched in 1995.)



SUPER 55
(The first lens in the 50x range was launched in 1987.)



PV40x13.5B
Launched in 1982

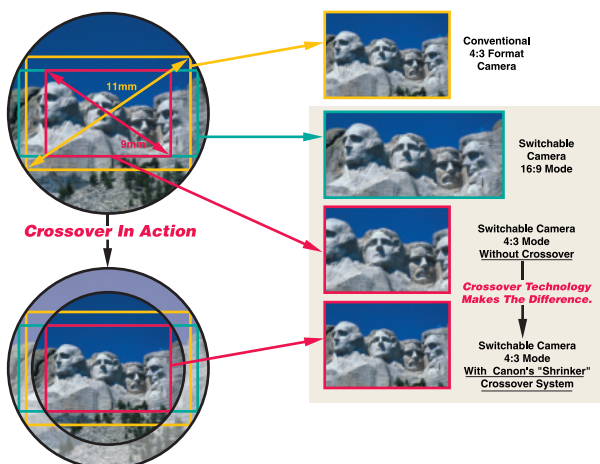
Crossover Technology



The optional application of the "Crossover Technology" to each lens is indicated on specification pages of each product category.

CROSSOVER

Switchable CCD Cameras that can switch between the two aspect ratios have become increasingly popular, since they allow the user to maintain both formats during transition. However, when the switch is made from 16:9 to 4:3, both sides of the image projected on the CCD are cut off, thereby shortening the diagonal of the picture from the conventional 4:3 norm of 11mm to 9mm as the diagram below illustrates. To compensate for this loss, Canon has developed Crossover Technology and incorporated it into a line of Studio/Field lenses that restore the 4:3 image of a switchable camera to that of a conventional 4:3 format camera. Crossover Technology utilized a built-in "Shrinker" which is a lens group to be inserted into the relay section of the master lens in order to shrink the image circle diameter by a factor of 0.8x.



The diagram shows how Canon's exclusive Crossover Technology uses a 0.8x "Shrinker" to restore the loss of diagonal and return the 4:3 image of a Switchable Camera to the same as a Standard Camera.

Optical Image Stabilizer

IMAGE STABILIZER

The products with the "Optical Image Stabilizer" technologies are shown with this legend on page 13, 14, 22 and 30.

Employment of Vari-angle Prism Image Stabilizer (VAP-IS)

Canon introduces the "Vari-angle Prism" image stabilizer (VAP-IS), our patented breakthrough technology, the world's first, Optical Image Stabilization solution provided for broadcast ENG/EFP lenses. For the details on how VAP-IS works, please refer to page 30. The VAP-IS covers a wide bandwidth of frequencies including high frequencies that are often encountered with moving vehicles, helicopters etc. The VAP-IS has been improving the video quality in such environments.

*The IS-20BII is for stock sales only.



IS-20BII *

P30

Another Epoch-making Technology; Optical Shift Image Stabilizer (Shift-IS)

The history of field lenses is a history of zoom ratio/focal length extension. It came to a point where the industry thought it would be impossible to push the envelope any further. The telephoto focal lengths of the lens got so long that even the slightest amount of wind or operator movement would cause image shake and viewing the picture became intolerable, this was before Canon announced the incredible magnification DIGISUPER 86 xs zoom lens. Canon, renowned for its optical image stabilization technologies, developed another new stabilization solution for the broadcast field lens, a built-in Optical Shift Image Stabilizer (Shift-IS) to overcome image shaking at telephoto focal length. Now the Shift-IS is employed in the DIGISUPER 100 xs, DIGISUPER 100AF, DIGISUPER 86II TELE xs, DIGISUPER 86II xs, DIGISUPER 86AF, DIGISUPER 75 xs, HJ40x10B IASD-V and HJ40x14B IASD-V.



**DIGISUPER 100AF
DIGISUPER 100 xs**

P13



**DIGISUPER 86AF
DIGISUPER 86II xs
DIGISUPER 86II TELE xs**

P13, 14



DIGISUPER 75 xs

P14

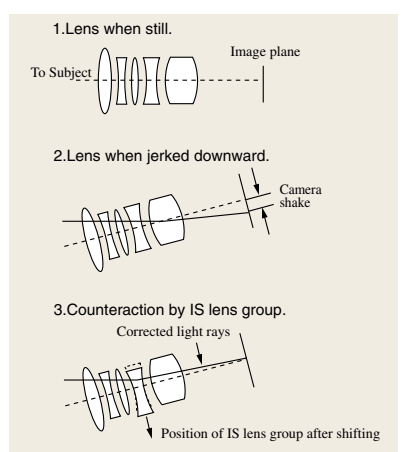


**HJ40x10B IASD-V
HJ40x14B IASD-V**

P22

How the Optical Shift Image Stabilizer (Shift-IS) Works

When the lens moves, the light rays from the subject are bent relative to the optical axis, resulting in an unsteady image because the light rays are deflected. By shifting the IS lens group on a plane perpendicular to the optical axis to counter the degree of image shake, the light rays reaching the image plane can be steadied. Since image shake occurs in both horizontal and vertical directions, two shake-detecting sensors for yaw and pitch, detect the angle and speed of movement and send this information to a high-speed 32-bit microcomputer, which converts the information into drive signals for the IS lens group. Then the actuator moves the IS lens group horizontally and vertically thus counteracting the image shake and maintaining the stable picture. The Shift-IS component is located within the lens group and is most effective for lower frequency movements caused by platform vibration or wind effect without increasing the overall size and weight of the master lens.



The Latest HDTV Lens Series

Canon began developing lenses for the “HDTV System” more than 20 years ago. Canon was the first manufacturer to complete a standard series consisting of five basic models of practical 2/3” HDTV lenses by launching the HJ15x8B (in 1997) in addition to four existing lenses: Standard, Tele and Wide portable, as well as Studio/Field. Canon continues to lead the broadcast industry into the 21st century “DTV” era with the next generation of lens families, consisting of the following four HDTV Lens Series:

HDxs Series

Shown on Page 13-16, and 22.



Studio/Field Lenses



Compact Studio Lens



EFP Lenses

HDXS

New HDxs Series
Shown on Page 22 and 23.



ENG/EFP Lenses

HDgc Series

Shown on Page 27-29.



ENG Lenses for 2/3" Cameras



ENG Lenses for 1/2" Cameras



ENG Lenses for 1/3" Cameras

HDcc Series

Shown on Page 37, 38.



Cinema Zoom Lenses



Cinema Prime Lenses

Overall Comparison Between the SDTV and the HDTV System

Whereas one frame of the conventional SDTV (ie NTSC) system consists of 480 scanning lines, the number of scanning lines is more than 1.5 times that for the HDTV system. Furthermore the density of the scanning lines are even higher because the HDTV system has an aspect ratio of 16:9, which is wider and shorter in height than that of the normal SDTV (4:3 aspect ratio) system. The spatial frequency required for the HDTV system is about twice that required for the NTSC system.

Overall, the resolution of the HDTV system is about twice that of the NTSC system and therefore, the lens requires much higher performance than the conventional lenses.

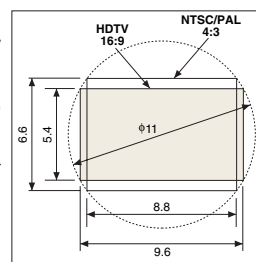
2/3"	HDTV	NTSC
Image format	9.6 x 5.4	8.8 x 6.6
Nominal frequency	600TVL	400TVL
Spatial frequency	55Line pairs/mm	30Line pairs/mm

Depth of Field for HDTV System

As the HDTV system has high resolution, even a small out-of-focus area can be detected. Since the radius of the permissible circle of confusion is about half that of the conventional system, the depth of field becomes proportionately smaller. Therefore, the focusing has to be done with great care.

Sensitivity of the HDTV System

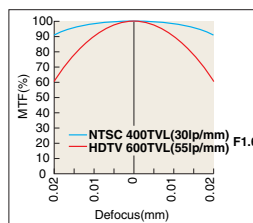
Two factors have to be considered to compare the sensitivity of the HDTV system with that of the conventional system. The first factor is that the HD camera has an aspect ratio of 16:9. This makes the sensitive area smaller and causes a 10% difference in sensitivity. The second factor is related to the HDTV system's depth of field, which is half of the conventional system. Therefore, on HD cameras, the lenses must be stopped down until their F-number becomes double in order to get the same depth of field as that in the conventional system. This reduces the sensitivity to one fourth (1/4).



Aberration Correction for HDTV Lenses

The pixel size is about half in the HDTV system, and therefore the spread of a point image caused by a spherical aberration, coma, etc. should be diminished to about half. Even if the image is slightly out of focus, MTF is greatly influenced.

The graph shows how MTF varies when the focus changes. Canon HDxs series lenses employ the HD version of the Power Optical System, which incorporates the X-Element. HDxs greatly contributes to correcting and minimizing these aberrations in a compact lightweight lens body.



Studio/ Field Lenses

- Please refer to page 11 regarding the difference between HDTV and SDTV lenses. Please note that the HDTV lenses perform excellently when they are used on SDTV cameras.
- The DIGISUPER series lenses are controlled by Canon's ground breaking Digital Servo System (refer to page 17 & 18).
- The DIGISUPER 22 xs is a studio lens based on a new concept to be used with portable cameras. Please refer to page 16 for the specification.



*DIGISUPER Series
for HDTV / SDTV
System*

*DIGISUPER 22 xs
for Portable Camera*

Studio/Field Lenses

HDTV/SDTV

HDXS DIGI SUPER



IMAGE STABILIZER

DIGISUPER 100AF

HDXS DIGI SUPER



IMAGE STABILIZER

DIGISUPER 100 xs

HDXS DIGI SUPER



IMAGE STABILIZER

DIGISUPER 86II TELE xs

Model Number		XJ100x9.3B AF	XJ100x9.3B IE-D	XJ86x13.5B IE II -D
Zoom Ratio		100x	100x	86x
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		9.3~930mm 18.6~1860mm	9.3~930mm 18.6~1860mm (2.0x)	13.5~1161mm 27~2322mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.7 at 9.3~296mm 1:4.7 at 930mm 1:3.4 at 18.6~592mm 1:9.4 at 1860mm (2.0x)	1:1.7 at 9.3~296mm 1:4.7 at 930mm 1:3.4 at 18.6~592mm 1:9.4 at 1860mm (2.0x)	1:2.4 at 13.5~480mm 1:5.8 at 1161mm 1:4.8 at 27~960mm 1:11.6 at 2322mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	50.6°x39.1° at 9.3mm 0.54°x0.41° at 930mm 26.6°x20.1° at 18.6mm 0.27°x0.20° at 1860mm (2.0x)	50.6°x39.1° at 9.3mm 0.54°x0.41° at 930mm 26.6°x20.1° at 18.6mm 0.27°x0.20° at 1860mm (2.0x)	36.1°x27.5° at 13.5mm 0.43°x0.33° at 1161mm 18.5°x13.9° at 27mm 0.22°x0.16° at 2322mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	54.6°x32.4° at 9.3mm 0.59°x0.33° at 930mm 28.9°x16.5° at 18.6mm 0.30°x0.17° at 1860mm (2.0x)	54.6°x32.4° at 9.3mm 0.59°x0.33° at 930mm 28.9°x16.5° at 18.6mm 0.30°x0.17° at 1860mm (2.0x)	39.1°x22.6° at 13.5mm 0.47°x0.27° at 1161mm 20.2°x11.4° at 27mm 0.24°x0.13° at 2322mm (2.0x)
M.O.D. from Lens Front		3.0m	3.0m	3.0m
Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	253.9x190.4cm at 9.3mm 2.54x1.90cm at 930mm 127.0x95.2cm at 18.6mm 1.27x0.95cm at 1860mm (2.0x)	253.9x190.4cm at 9.3mm 2.54x1.90cm at 930mm 127.0x95.2cm at 18.6mm 1.27x0.95cm at 1860mm (2.0x)	181.7x136.3cm at 13.5mm 2.1x1.6cm at 1161mm 90.9x68.2cm at 27mm 1.1x0.8cm at 2322mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	276.4x155.5cm at 9.3mm 2.76x1.56cm at 930mm 138.2x77.8cm at 18.6mm 1.38x0.78cm at 1860mm (2.0x)	276.4x155.5cm at 9.3mm 2.76x1.56cm at 930mm 138.2x77.8cm at 18.6mm 1.38x0.78cm at 1860mm (2.0x)	198.2x111.5cm at 13.5mm 2.3x1.3cm at 1161mm 99.1x55.7cm at 27mm 1.2x0.7cm at 2322mm (2.0x)
Approx.Size (WxHxL)		250.6x255.5x661.5mm	250.6x255.5x591.5mm	250.6x255.5x618.4mm
Approx.Mass		26.8kg (59.3lbs)	23.5kg (51.8lbs)	24.3kg (53.6lbs)
Macro		—	—	—
Protection Filter		Standard	Standard	Standard
Built-in Optical Image Stabilizer		Yes	Yes	Yes
Crossover Type		—	Option	Option
Auto Focus System		Yes	—	—

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras as explained on page 9

Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	42.3°x32.4° at 9.3mm 0.44°x0.33° at 930mm 21.9°x16.5° at 18.6mm 0.22°x0.27° at 1860mm (2.0x)	29.9°x22.6° at 13.5mm 0.36°x0.27° at 1161mm 15.2°x11.4° at 27mm 0.18°x0.13° at 2322mm (2.0x)

*Refer to page 11, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
*M.O.D. = Minimum Object Distance

Studio/Field Lenses

HDTV/SDTV

HD XS DIGI SUPER



DIGISUPER 86AF

IMAGE
STABILIZER

HD XS DIGI SUPER



DIGISUPER 86II xs

IMAGE
STABILIZER

HD XS DIGI SUPER



DIGISUPER 75 xs

IMAGE
STABILIZER

HD XS DIGI SUPER



DIGISUPER 72 xs

Model Number	XJ86x9.3B AF		XJ86x9.3B IE II -D		XJ75x9.3B IE-D		XJ72x9.3B IE-D		
Zoom Ratio	86x		86x		75x		72x		
Built-in Extender	2.0x		2.0x		2.0x		2.0x		
Range of Focal Length (with Extender)	9.3~800mm 18.6~1600mm (2.0x)		9.3~800mm 18.6~1600mm (2.0x)		9.3~700mm 18.6~1400mm (2.0x)		9.3~675mm 18.6~1350mm (2.0x)		
Maximum Relative Aperture (with Extender)	1:1.7 at 9.3~340mm 1:4.0 at 800mm 1:3.4 at 18.6~680mm 1:8.0 at 1600mm (2.0x)		1:1.7 at 9.3~340mm 1:4.0 at 800mm 1:3.4 at 18.6~680mm 1:8.0 at 1600mm (2.0x)		1:1.7 at 9.3~331mm 1:3.6 at 700mm 1:3.4 at 18.6~662mm 1:7.2 at 1400mm (2.0x)		1:1.7 at 9.3~333mm 1:3.45 at 675mm 1:3.4 at 18.6~666mm 1:6.9 at 1350mm (2.0x)		
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	50.6°x39.1° at 9.3mm 0.63°x0.47° at 800mm 26.6°x20.1° at 18.6mm 0.32°x0.24° at 1600mm (2.0x)		50.6°x39.1° at 9.3mm 0.63°x0.47° at 800mm 26.6°x20.1° at 18.6mm 0.32°x0.24° at 1600mm (2.0x)		50.6°x39.1° at 9.3mm 0.72°x0.54° at 700mm 26.6°x20.1° at 18.6mm 0.36°x0.27° at 1400mm (2.0x)		50.6°x39.1° at 9.3mm 0.75°x0.56° at 675mm 26.6°x20.1° at 18.6mm 0.37°x0.28° at 1350mm (2.0x)	
	16:9 Aspect Ratio (9.6x5.4mm)	54.6°x32.4° at 9.3mm 0.69°x0.39° at 800mm 28.9°x16.5° at 18.6mm 0.34°x0.19° at 1600mm (2.0x)		54.6°x32.4° at 9.3mm 0.69°x0.39° at 800mm 28.9°x16.5° at 18.6mm 0.34°x0.19° at 1600mm (2.0x)		54.6°x32.4° at 9.3mm 0.79°x0.44° at 700mm 28.9°x16.5° at 18.6mm 0.39°x0.22° at 1400mm (2.0x)		54.6°x32.4° at 9.3mm 0.81°x0.46° at 675mm 28.9°x16.5° at 18.6mm 0.41°x0.23° at 1350mm (2.0x)	
M.O.D. from Lens Front	3.0m		3.0m		2.8m		2.8m		
Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	253.9x190.4cm at 9.3mm 2.8x2.1cm at 800mm 127.0x95.2cm at 18.6mm 3.2x1.8cm at 800mm (2.0x)		253.9x190.4cm at 9.3mm 2.96x2.22cm at 800mm 127.0x95.2cm at 18.6mm 1.48x1.11cm at 1600mm (2.0x)		234.3x175.7cm at 9.3mm 3.2x2.4cm at 700mm 117.2x87.9cm at 18.6mm 1.6x1.2cm at 1400mm (2.0x)		234.3x175.7cm at 9.3mm 3.3x2.5cm at 675mm 117.2x87.9cm at 18.6mm 1.7x1.3cm at 1350mm (2.0x)	
	16:9 Aspect Ratio (9.6x5.4mm)	276.4x155.5cm at 9.3mm 3.2x1.8cm at 800mm 138.2x77.8cm at 18.6mm 1.6x0.9cm at 1600mm (2.0x)		276.4x155.5cm at 9.3mm 3.22x1.81cm at 800mm 138.2x77.8cm at 18.6mm 1.61x0.91cm at 1600mm (2.0x)		255.6x143.8cm at 9.3mm 3.4x1.9cm at 700mm 127.9x71.9cm at 18.6mm 1.8x1.0cm at 1400mm (2.0x)		255.6x143.8cm at 9.3mm 3.6x2.0cm at 675mm 127.9x71.9cm at 18.6mm 1.8x1.0cm at 1350mm (2.0x)	
Approx.Size (WxHxL)	250.6x255.5x661.5mm		250.6x255.5x591.5mm		250.6x255.5x591.5mm		250.6x255.5x591.5mm		
Approx.Mass	26.8kg (59.3lbs)		23.5kg (51.8lbs)		22.0kg (48.5lbs)		21.8kg (48.1lbs)		
Macro	—		—		—		—		
Protection Filter	Standard		Standard		Option		Option		
Built-in Optical Image Stabilizer	Yes		Yes		Yes		—		
Crossover Type	—		Option		Option		Option		
Auto Focus System	Yes		—		—		—		

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras as explained on page 9.

Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	42.3°x32.4° at 9.3mm 0.52°x0.39° at 800mm 21.9°x16.5° at 18.6mm 0.26°x0.19° at 1600mm (2.0x)	42.3°x32.4° at 9.3mm 0.59°x0.44° at 700mm 21.9°x16.5° at 18.6mm 0.29°x0.22° at 1400mm (2.0x)	42.3°x32.4° at 9.3mm 0.61°x0.46° at 675mm 21.9°x16.5° at 18.6mm 0.31°x0.23° at 1350mm (2.0x)
---	--	---	---	---

- Refer to page 11, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- M.O.D. = Minimum Object Distance

HD XS DIGI SUPER



DIGISUPER 60 xs

HD XS DIGI SUPER



DIGISUPER 27AF

HD XS DIGI SUPER



DIGISUPER 27

HD XS DIGI SUPER



DIGISUPER 23 xs

XJ60x9B IE-D	XJ27x6.5B AF	XJ27x6.5B	XJ23x7B IE-D
60x	27x	27x	23x
2.0x	2.0x	2.0x	2.0x
9~540mm 18~1080mm (2.0x)	6.5~180mm 13~360mm (2.0x)	6.5~180mm 13~360mm (2.0x)	7~161mm 14~322mm (2.0x)
1:1.7 at 9~306mm 1:3.0 at 540mm 1:3.4 at 18~612mm 1:6.0 at 1080mm (2.0x)	1:1.5 at 6.5~123mm 1:2.2 at 180mm 1:3.0 at 13~246mm 1:4.4 at 360mm (2.0x)	1:1.5 at 6.5~123mm 1:2.2 at 180mm 1:3.0 at 13~246mm 1:4.4 at 360mm (2.0x)	1:1.6 at 7~132mm 1:1.95 at 161mm 1:3.2 at 14~223mm 1:3.9 at 322mm (2.0x)
52.1°x40.3° at 9mm 0.93°x0.70° at 540mm 27.5°x20.8° at 18mm 0.47°x0.35° at 1080mm (2.0x)	68.2°x53.8° at 6.5mm 2.8°x2.1° at 180mm 37.4°x28.5° at 13mm 1.4°x1.1° at 360mm (2.0x)	68.2°x53.8° at 6.5mm 2.8°x2.1° at 180mm 37.4°x28.5° at 13mm 1.4°x1.1° at 360mm (2.0x)	64.3°x50.5° at 7mm 3.1°x2.3° at 161mm 34.9°x26.5° at 14mm 1.6°x1.2° at 322mm (2.0x)
56.1°x33.4° at 9mm 1.02°x0.57° at 540mm 29.9°x17.1° at 18mm 0.51°x0.29° at 1080mm (2.0x)	72.9°x45.1° at 6.5mm 3.1°x1.7° at 180mm 40.5°x23.5° at 13mm 1.5°x0.9° at 360mm (2.0x)	72.9°x45.1° at 6.5mm 3.1°x1.7° at 180mm 40.5°x23.5° at 13mm 1.5°x0.9° at 360mm (2.0x)	68.8°x42.1° at 7mm 3.4°x1.9° at 161mm 37.8°x21.8° at 14mm 1.7°x1.0° at 322mm (2.0x)
2.8m	0.6m(10mm with Macro)	0.6m(10mm with Macro)	0.6m
243.8x182.9cm at 9mm 4.1x3.1cm at 540mm 121.9x91.5cm at 18mm 2.1 x 1.6cm at 1080mm (2.0x)	97.0x72.8cm at 6.5mm 3.5x2.6cm at 180mm 48.5x36.4cm at 13mm 1.8x1.3cm at 360mm (2.0x)	97.0x72.8cm at 6.5mm 3.5x2.6cm at 180mm 48.5x36.4cm at 13mm 1.8x1.3cm at 360mm (2.0x)	90.6x68.0cm at 7mm 3.8x2.9cm at 161mm 45.3x34.0cm at 14mm 1.9x1.5cm at 322mm (2.0x)
265.1x149.1cm at 9mm 4.5x2.5cm at 540mm 132.6x74.6cm at 18mm 2.3x1.3cm at 1080mm (2.0x)	106.1x59.7cm at 6.5mm 3.8x2.1cm at 180mm 53.1x29.9cm at 13mm 1.9x1.1cm at 360mm (2.0x)	106.1x59.7cm at 6.5mm 3.8x2.1cm at 180mm 53.1x29.9cm at 13mm 1.9x1.1cm at 360mm (2.0x)	99.0x55.7cm at 7mm 4.2x2.4cm at 161mm 49.5x27.9cm at 14mm 2.1x1.2cm at 322mm (2.0x)
250.6x255.5x547.8mm	250.6x255.5x567mm	250.6x255.5x550mm	250.6x255.5x525mm
19.9kg(43.8lbs)	23.3kg (51.4lbs)	21.9kg (48.3lbs)	19.5kg (42.5lbs)
—	Option (Remote)	Option (Remote)	—
Option	Option	Option	Option
—	—	—	—
Option	—	Option	Option
—	Yes	—	—

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras as explained on page 9.

43.6°x33.4° at 9mm 0.76°x0.57° at 540mm 22.6°x17.1° at 18mm 0.38°x0.29° at 1080mm (2.0x)	58.0°x45.1° at 6.5mm 2.3°x1.7° at 180mm 31.0°x23.5° at 13mm 1.1°x0.9° at 360mm (2.0x)	54.3°x42.1° at 7mm 2.5°x1.9° at 161mm 27.9°x21.1° at 14mm 1.3°x1.0° at 322mm (2.0x)
---	--	--

Studio/Field Lenses

COMPACT STUDIO LENS

HDxs DIGISUPER



DIGISUPER 22 xs

Model Number	XJ22x7.3B IE-D
Zoom Ratio	22x
Built-in Extender	2.0x
Range of Focal Length (with Extender)	7.3~161mm 14.6~322mm (2.0x)

Maximum Relative Aperture	1:1.8 at 7.3~111.5mm
(with Extender)	1:2.6 at 161mm 1:3.6 at 14.6~223mm (2.0x) 1:5.2 at 322mm

Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	62.2°x48.7° at 7.3mm 3.1°x2.3° at 161mm 33.5°x25.5° at 14.6mm (2.0x) 1.6°x1.2° at 322mm
	16:9 Aspect Ratio (9.6x5.4mm)	66.7°x40.6° at 7.3mm 3.4°x1.9° at 161mm 36.4°x21.0° at 14.6mm (2.0x) 1.7°x1.0° at 322mm

M.O.D. from Lens Front	0.8m (10mm with Macro)
------------------------	------------------------

Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	107.8x80.9cm at 7.3mm 4.8 x 3.6cm at 161mm 53.9 x 40.5cm at 14.6mm (2.0x) 2.4 x 1.8cm at 322mm
	16:9 Aspect Ratio (9.6x5.4mm)	118.1x66.4cm at 7.3mm 5.2 x 2.9cm at 161mm 59.1 x 33.2cm at 14.6mm (2.0x) 2.6 x 1.5cm at 322mm

Approx.Size(WxHxL)	165x175x336mm
--------------------	---------------

Approx.Mass	6.1kg (13.42lbs)
-------------	------------------

Macro	Standard (Manual)
-------	-------------------

Protection Filter	—
-------------------	---

Built-in Optical Image Stabilizer	—
-----------------------------------	---

Crossover Type	Option
----------------	--------

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras as explained on page 9.

Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras	52.5°x40.6° at 7.3mm 2.6°x1.9° at 161mm 27.7°x21.0° at 14.6mm (2.0x) 1.3°x1.0° at 322mm
	(7.2x5.4mm)	

Compact Studio Lens DIGISUPER 22 xs

Corresponding to the world's trend of using portable cameras in HD Studio Systems, Canon introduces a new concept for a Studio Lens.



The DIGISUPER 22 xs is a "Compact HD Studio lens" which was specifically designed to be used with a portable camera.

By adopting technologies developed from Canon's long history, the DIGISUPER 22 xs is superior in both optical performance and ease of operation, compared with HD portable lenses as well as all previous SD Studio Box Type Lenses.

High Optical Performance

The DIGISUPER 22 xs offers higher contrast and resolution compared with portable lenses and at the same time, reducing the Focus Breathing to a zero level.

Small In Size, Light In Weight

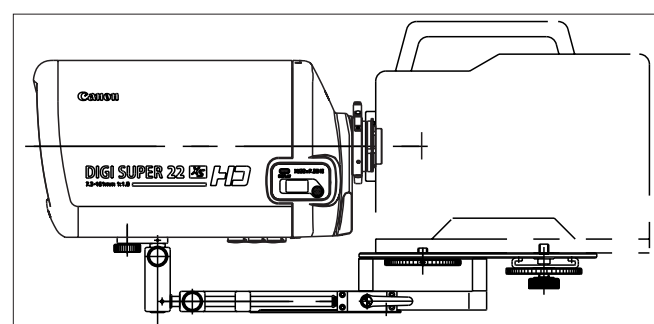
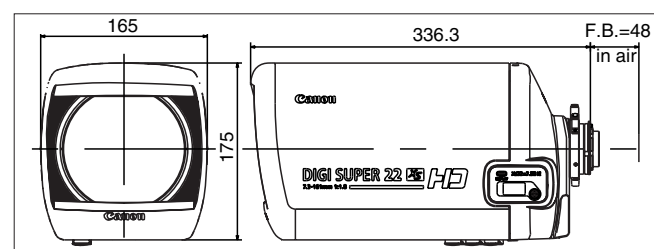
In order to realize the best capabilities from the camera / lens combination, the lens was specifically designed to be as small and light as possible.

Advanced Operation

By adopting the "Encoder Device", it has capable features to zoom from a very fast 0.5 sec. to a very slow 5 min. and at the same time, making the zoom, focus and iris control much more precise and repeatable. Also, the new encoder device enables the lens to be easily integrated into virtual studio applications.

Diverse Functions

The DIGISUPER 22 xs is equipped with an information display, which will enable you to use diverse digital functions, easily and precisely.



• Refer to page 11, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
• M.O.D. = Minimum Object Distance
• The SUP-400 supporter for the DIGISUPER 22xs is included as a standard component with the lens.

Features; DIGISUPER Studio/Field Lenses



The latest version of the DIGISUPER series Studio/Field lenses are developed with the most advanced technologies, keeping in mind possible future production style. In the DIGISUPER series, the focus and the zoom servo systems are digital using a 32-bit CPU as opposed to the conventional analog system. The second generation of Digital Servo offers functions that were not possible before and the ability to upgrade the CPU for new features and unlimited possibilities in the future. The main features are as follows.

(Digital Servo System is available for DIGISUPER 100 xs, DIGISUPER 100AF, DIGISUPER 86II TELE xs, DIGISUPER 86II xs, DIGISUPER 86AF, DIGISUPER 75 xs, DIGISUPER 72 xs, DIGISUPER 60 xs, DIGISUPER 27AF, DIGISUPER 27, DIGISUPER 25 xs and DIGISUPER 23 xs .)

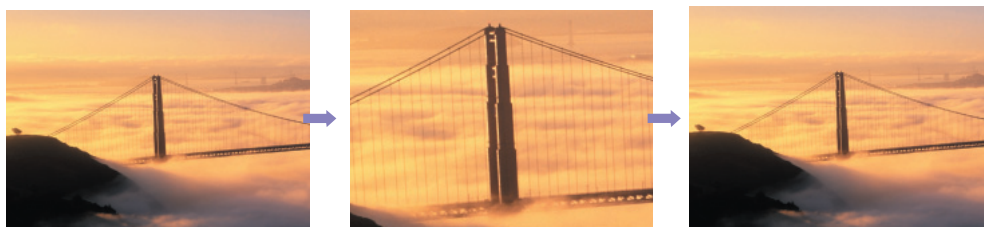
1. Unique Features of the latest DIGISUPER Series Lens and the ZDJ-D02, Digital Servo Zoom Demand

a) Shuttle Shot and Frame Preset

Unlike Digital Drive in the portable lenses, two preset memories are available in any combination of Shuttle Shot and Frame Preset.

Shuttle Shot

At the touch of a button, this feature allows the operator to zoom back and forth instantly between any two positions at the maximum speed or at any desired speed memorized in the speed preset function in either direction. It can be used for zooming to either the tele-side or wider focal length from any starting point to check the picture, then return instantly to the original focal length. You can “shuttle” between any two zoom positions as you like.



Frame Preset

A movement to a preset position can, again, be repeated multiple times. The preset memory is not automatically cleared and the agreed-on framings from rehearsal can be duplicated over and over in an actual production at the maximum speed or at any desired speed memorized in the speed preset function.



b) Speed Preset

A zoom speed agreed on during rehearsal can be reproduced accurately. The preset memory is not automatically cleared and can be repeated as many times as needed.

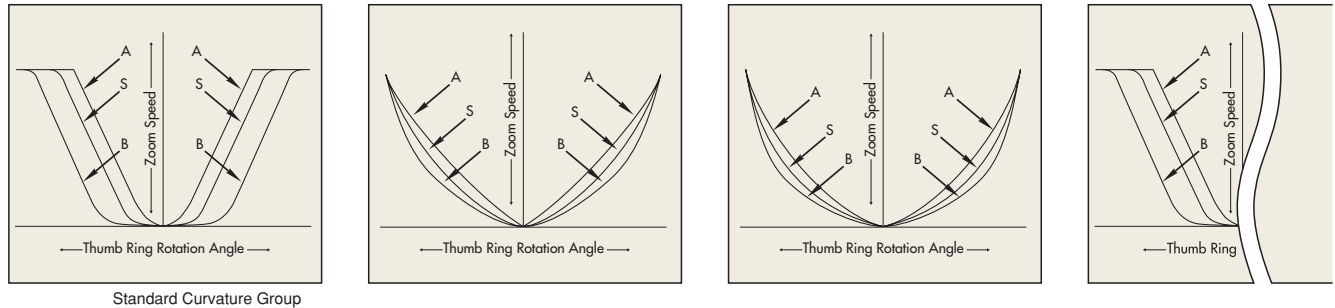


c) Zoom Track

The zoom control range can be restricted. In a conventional analog system, the same function can be set within a limited range. (Both the Tele and Wide ends are within a limited area). With the latest DIGISUPER series and the ZDJ-D02 system, the range can be virtually set at any position used in a production. If desired, this function can be used to memorize an additional preset zoom position to be used during a production.

d) Zoom Servo Characteristics Selection

Zoom servo characteristics can be selected from several groups of provided curvatures by setting the mode from the ZDJ-D02 operation panel. Within each group, one of three specific curvatures can be easily chosen by a toggle switch located near the zoom handle.



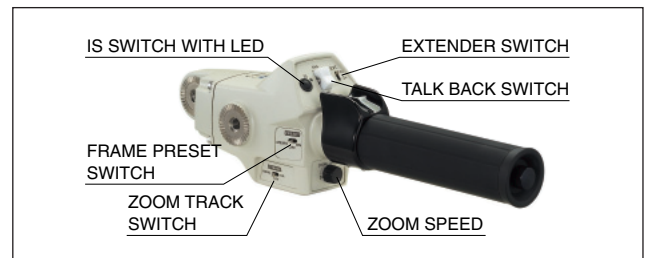
e) "AUX" Switch Function Assignment

One of following functions can be assigned to the AUX switch on the ZDJ-D02.

- 1) Image Stabilizer : To activate/stop the built-in Shift-IS function. (Ref: page 10)
- 2) F. Hold: To limit the zoom range to a consistent F-number and to stop at the point of F-drop (Ramping).
- 3) Video Return Off: If desired, the "AUX" switch can be assigned the function of disabling the video return switch on the demand.

2. Unique Features of the ZDJ-P01 Digital Servo Zoom Demand For The Latest DIGISUPER Series Zoom Lenses.

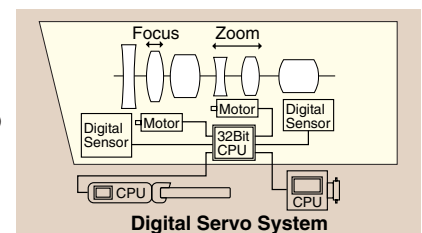
In addition to Canon's ZDJ-D02, there is an introduction of a new zoom demand, the ZDJ-P01. In comparison, the ZDJ-P01 is smaller in size and designed to enhance usability and heighten ease of operation. When used with the latest DIGISUPER series zoom lens, it allows for creative use of the digital zoom functions, such as the Frame Preset Function and Zoom Track Function, to name a few. As well as these great features, the ZDJ-P01 is a more affordable option and allows for a cost effective control system.



3. CAFS

Constant Angle Focusing System

The zooming effect of focus is the phenomenon where the picture size (angle of view) changes when focusing. However, a 32-bit CPU calculates and controls the zoom when focusing in order to counteract this phenomenon. Thus the DIGISUPER series has ZERO zooming effect of focus.



4. Other Features

a) Interface to other digital technology

The Digital Servo System is capable of providing high-speed interactive communication with a virtual studio computer or robotics without D/A or A/D conversion to allow accurate control.

b) PC Connection

By using the digital communication interface on the lens and optional software, a personal computer system can be connected to the lens and used for lens condition.

c) CPU Upgrade

When new additional features are available through updated software, the lens will be updated to the latest version simply by overwriting the software in the 32bit CPU.

d) High speed (zoom:0.5sec, focus:0.8sec in case of the DIGISUPER 27), and high repeatability.

e) Auto Focus Function

Canon's unique auto focusing system has been adapted to the newly introduced DIGISUPER 100AF, DIGISUPER 86AF and DIGISUPER 27AF. Please refer to page 5 for the details.

Control Accessories for Studio/Field Lenses

Applicable Lenses

DIGITAL

DIGISUPER Series

DIGISUPER 100AF / DIGISUPER 100 xs

DIGISUPER 86II TELE xs

DIGISUPER 86AF / DIGISUPER 86II xs

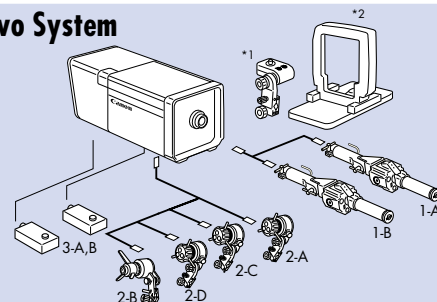
DIGISUPER 75 xs / DIGISUPER 72 xs

DIGISUPER 60 xs

DIGISUPER 27AF / DIGISUPER 27

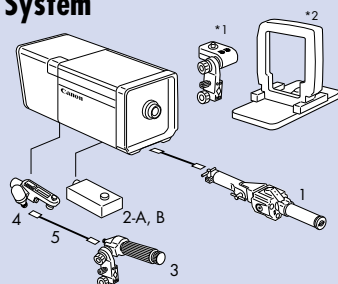
DIGISUPER 23 xs

Full Servo System



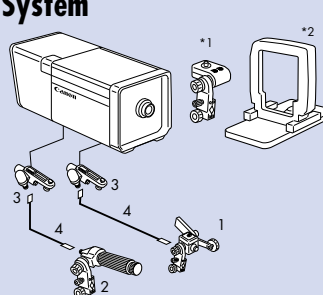
1-A.	Zoom Demand ZDJ-D02(Digital Servo)	1822A066
1-B.	Zoom Demand ZDJ-P01(Digital Servo)	1822A082
2-A.	Focus Demand FDJ-D02(Digital Servo)*3	1822A065
2-B.	Focus Demand FDJ-D12(Digital Servo)*4	1822A071
2-C.	Focus Demand FDJ-P01(Digital Servo)	1822A081
2-D.	Focus Demand FDJ-P31(Digital Servo)*7	—
3-A.	Servo Module SMJ-D02(×2pcs)*6	1822A070
3-B.	Servo Module SMJ-E01(×2pcs)*6	1822A077

Semi-Servo System



1.	Zoom Demand ZDJ-D02(Digital Servo)	1822A066
2-A.	Servo Module SMJ-D02	1822A070
2-B.	Servo Module SMJ-E01*6	1822A077
3.	Flexible Focus Controller FFP-T61	1822A007
4.	Flexible Module FMJ-702	1822A072
5.	Flexible Cable 36" *5	—

Full Manual System



1.	Flexible Zoom Controller FZP-T61	1822A005
2.	Flexible Focus Controller FFP-T61	1822A007
3.	Flexible Module FMJ-702 (×2pcs)	1822A072
4.	Flexible Cable 36" (×2pcs) *5	—

*1 Switch Box is optionally available. The equivalent switches are integrated into Zoom Demands. It is recommended to have the Switch Box with Full Manual System.

*2 Lens Supporter is necessary for portable camera mounting. Some cameras need separate power supply for zoom and focus servo operation.

*3 "Endless" Digital Focus Demand FDJ-E02 is optionally available.

*4 "Endless" Digital Focus Demand FDJ-E12 is optionally available.

*5 Flexible Cable 33" is optionally available.

*6 The servo module SMJ-E01 can only be used with DIGISUPER 100AF, DIGISUPER 86AF, DIGISUPER 60 xs, DIGISUPER 27AF, DIGISUPER 27 and DIGISUPER 23 xs. The servo module SMJ-D02 can only be used with DIGISUPER 100 xs, DIGISUPER 86 II TELE, DIGISUPER 86 II xs, DIGISUPER 75 xs, DIGISUPER 72 xs and DIGISUPER 25 xs

*7 For DIGISUPER 100 AF, DIGISUPER 86 AF and DIGISUPER 27AF, FDJ-P31 is necessary to control the AF function. FDJ-P41 is also available for left hand users.

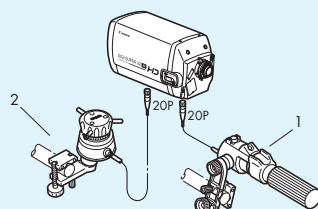
• Zoom Demand and Focus Demand with Pre-set Box is also available.

• For detail information, please contact a Canon Sales Office.

DIGISUPER 22 xs

The DIGISUPER 22 xs can be used with our current Studio/Field lens controllers as well as those for our ENG lenses. At the same time, the lens also offers compatibility with our new digital demands by use of a conversion cable.

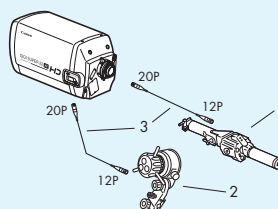
With Current ENG Demand (Standard)



Kit Detail

No.	DESCRIPTION	
1	Digital Zoom Demand	ZSD-300D
2	Digital Focus Demand	FPD-400D

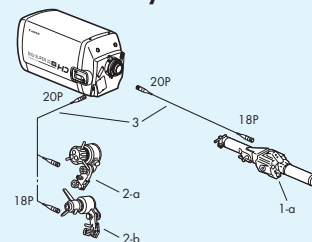
With New Digital Demand



Kit Detail

No.	DESCRIPTION	
1	Digital Zoom Demand	ZDJ-P01
2	Digital Focus Demand	FDJ-P01
3	Conversion Cable	BDC-20

With Current Field/Studio Demand



Kit Detail

No.	DESCRIPTION	
1-a	Digital Zoom Demand	ZDJ-D02
2-a	Digital Focus Demand	FDJ-D02
2-b	Digital Focus Demand Propeller Type	FDJ-D12
3	Conversion Cable	BDC-10

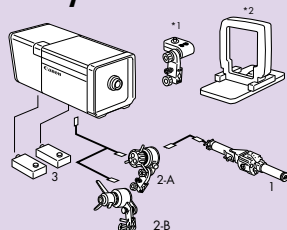
* The SUP-400 SUPPORTER is included as a standard component with the lens.

ANALOG

SUPER/SUPER-E Series

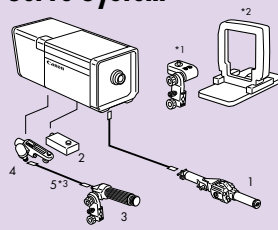
SUPER 55, SUPER E47, SUPER 21, SUPER 20/SUPER E20

Full Servo System



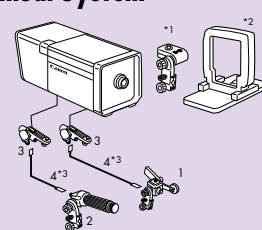
1. Zoom Demand ZDJ-A01 (Analog Servo)	1822A053
2-A. Focus Demand FDJ-H01 (Analog Servo)	1822A010
2-B. Focus Demand FDJ-H01 (Analog Servo)*4	1822A012
3. Servo Module SMJ-N02 (x2pcs)*4	1822A038

Semi-Servo System



1. Zoom Demand ZDJ-A01 (Analog Servo)	1822A053
2. Servo Module SMJ-N02*4	1822A038
3. Flexible Focus Controller FFP-T61	1822A007
4. Flexible Module FMJ-702	1822A072AA
5. Flexible Cable 36"*3	—

Full Manual System



1. Flexible Zoom Controller FZP-T61	1822A005
2. Flexible Focus Controller FFP-T61	1822A007
3. Flexible Module FMJ-702 (x2pcs)	1822A072AA
4. Flexible Cable 36" (x2pcs)*3	—

*1 Switch Box is optionally available. The equivalent switches are integrated into Zoom Demands. It is recommended to have the Switch Box with Full Manual System.

*2 Lens Supporter is necessary for portable camera mounting. Some cameras need separate power supply for zoom and focus servo operation.

*3 Flexible Cable 33" is optionally available.

*4 FDJ-H01 and SMJ-N02 is not available from Canon stock.

- Zoom Demand and Focus Demand with Pre-set Box is also available.
- For detail information, please contact a Canon Sales Office.

Studio/Field Lenses Mount Compatibility

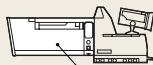
To Use Camera Manufacturer's Original Mount Lens

Studio/Field lenses are made with unique mounts corresponding to each manufacturer's Studio/Field cameras. To make the lenses compatible with Portable Studio/Field Companion cameras, the correct lens Support System must be chosen from the following.

Standard HD Mount (BTA)

Panasonic, Ikegami, Hitachi
Thomson Grass Valley

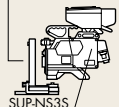
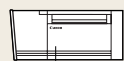
Standard HD Mount
Studio Camera
Systems from
Various
Manufacturers



2/3" Portable
Companion Cameras
with Standard HD Mount System

Sony

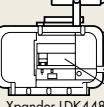
Sony 2/3" Studio Camera



Sony System
Companion
Portable Camera

Thomson Grass Valley-SDTV

LDK 2/3" Studio Camera



Xpander LDK4489/
Super Xpander LDK4488
Large Lens Adaptor
LDK System Companion
Portable Camera

Broadcast ENG/EFP Lenses

- Canon offers a variety of Broadcast ENG/EFP lenses, including both HDTV and SDTV versions. Please refer to page 11 regarding the difference between HDTV and SDTV lenses. Please note that the HDTV lenses perform excellently when they are used on SDTV cameras.
- Please refer to page 6,7 & 8 regarding HDxs, e-IFxs and HDgc series lenses. All Broadcast ENG/EFP lens are equipped with Canon's "xs" technology as well as our enhanced "Digital Drive" which is explained on page 31 & 32. Canon offers a series of new control accessories designed to operate the unique digital functions. The digital as well as the standard series of control accessories have full compatibility with each other except for the digital functions. (A conversion cable may be required.)
- Canon's Vari-angle Prism Image Stabilizer Adaptor is also shown in the following section.
- Canon's Electronic Cinematography lenses, which satisfy the special requirements of film camera operators, are shown in the following section.
- Please refer to page 26-29 for our latest HDgc ENG lenses.



For HDTV / SDTV System



For SDTV System



Vari-angle Prism Image Stabilizer Product



For Electronic Cinematography

Compact Studio Lens

DIGISUPER 22 xs

"Meet Canon's epoch-making DIGISUPER 22 xs.
A Studio Lens for Portable HD/SD Cameras."

The DIGISUPER 22 xs is a studio lens based on a completely new concept. It is a box type lens developed to be used with a portable camera. The lens provides higher optical performance compared with the HD portable lenses and at the same time, owing to the compact size, it offers higher versatility when used with a portable camera as opposed to the large box type lenses.

Also, the lens is equipped with an information display that will enable you to fully use Canon's unique digital functions. Please refer to page 16 for the specification.



2/3" ENG/EFP Lenses

HDTV/SDTV



HJ40x14B IASD-V



HJ40x10B IASD-V



HJ18ex28B IRSE A/IASE A

Zoom Ratio		40x	40x	18x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		14~560mm 28~1120mm (2.0x)	10~400mm 20~800mm (2.0x)	28~500mm 56~1000mm
Maximum Relative Aperture (with Extender)		1:2.8 at 14~307mm 1:5.1 at 560mm 1:5.6 at 28~614mm 1:10.2 at 1120mm (2.0x)	1:2.0 at 10~220mm 1:3.65 at 400mm 1:4.0 at 20~440mm 1:7.3 at 800mm (2.0x)	1:2.8 at 28~286mm 1:4.9 at 500mm 1:5.6 at 56~572mm 1:9.8 at 1000mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	34.9°x26.5° at 14mm 0.9°x0.7° at 560mm 17.9°x13.4° at 28mm 0.5°x0.3° at 1120mm (2.0x)	47.5°x36.5° at 10mm 1.3°x0.9° at 400mm 24.8°x18.7° at 20mm 0.6°x0.5° at 800mm (2.0x)	18.0°x13.5° at 28mm 1.0°x0.8° at 500mm 9.0°x6.8° at 56mm 0.5°x0.4° at 1000mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	37.8°x21.8° at 14mm 1.0°x0.6° at 560mm 19.4°x11.0° at 28mm 0.5°x0.3° at 1120mm (2.0x)	51.3°x30.2° at 10mm 1.4°x0.8° at 400mm 27.0°x15.4° at 20mm 0.7°x0.4° at 800mm (2.0x)	19.6°x11.1° at 28mm 1.1°x0.6° at 500mm 9.9°x5.6° at 56mm 0.6°x0.3° at 1000mm (2.0x)
M.O.D. from Lens Front		2.8m (10mm with Macro)	2.8m (10mm with Macro)	2.2m (10mm with Macro)
M.O.D. from Image Plane		3.20m	3.18m	2.52m
Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	162.3x121.7cm at 14mm 4.1x3.1cm at 560mm 81.2x60.9cm at 28mm 2.1x1.6cm at 1120mm (2.0x)	227.7x170.8cm at 10mm 5.7x4.3cm at 400mm 113.9x85.4cm at 20mm 2.9x2.2cm at 800mm (2.0x)	65.4x49.1cm at 28mm 3.8x2.9cm at 500mm 32.7x24.6cm at 56mm 1.9x1.5cm at 1000mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	177.1x99.5cm at 14mm 4.5x2.5cm at 560mm 88.6x49.8cm at 28mm 2.3x1.3cm at 1120mm (2.0x)	248.4x139.7cm at 10mm 6.2x3.5cm at 400mm 124.2x69.9cm at 20mm 3.1x1.8cm at 800mm (2.0x)	71.1x40.0cm at 28mm 4.1x2.3cm at 500mm 35.6x20.0cm at 56mm 2.1x1.2cm at 1000mm (2.0x)
Approx.Size (WxHxL)		174.1x133x355.5mm	174.1x133x335.4mm	182.8x123.7x268.3mm
Approx.Mass (IRSE/IASE)		5.45kg (12.02lbs)	5.40kg (11.90lbs)	2.50kg (5.52lbs)/2.60kg (5.74lbs)

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras, as explained on page 9.

Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	28.8°x21.8° at 14mm 0.7°x0.6° at 560mm 14.7°x11.0° at 28mm 0.4°x0.3° at 1120mm (2.0x)	39.6°x30.2° at 10mm 1.0°x0.8° at 400mm 20.4°x15.4° at 20mm 0.5°x0.4° at 800mm (2.0x)	14.7°x11.1° at 28mm 0.8°x0.6° at 500mm 7.4°x5.6° at 56mm 0.4°x0.3° at 1000mm (2.0x)
--	--	--	---	--

- Refer to page 11, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- Please refer to page 33 for explanation about IRSE/IASE (IASD).
- M.O.D. = Minimum Object Distance
- IRSE / IASE Digital Drive Units come equipped with Zoom, Iris and Focus Encoders.

 	 	 	 
HJ22ex7.6B IRSE A/IASE A	HJ21ex7.5B IRSE A/IASE A	HJ17ex7.6B IRSE A/IASE A	HJ14ex4.3B IRSE/IASE NEW
22x	21x	17x	14x
2/3"	2/3"	2/3"	2/3"
2.0x	2.0x	2.0x	2.0x
7.6~168mm 15.2~336mm (2.0x)	7.5~158mm 15~316mm (2.0x)	7.6~130mm 15.2~260mm (2.0x)	4.3~60mm 8.6~120mm (2.0x)
1:1.8 at 7.6~114.1mm 1:2.65 at 168mm 1:3.6 at 15.2~228.2mm 1:5.3 at 336mm (2.0x)	1:1.9 at 7.5~116mm 1:2.6 at 158mm 1:3.8 at 15~232mm 1:5.2 at 316mm (2.0x)	1:1.8 at 7.6~97.5mm 1:2.4 at 130mm 1:3.6 at 15.2~195mm 1:4.8 at 260mm (2.0x)	1:1.8 at 4.3~40mm 1:2.7 at 60mm 1:3.6 at 8.6~80mm 1:5.4 at 120mm (2.0x)
60.1°x46.9° at 7.6mm 3.0°x2.25° at 168mm 32.3°x24.5° at 15.2mm 1.5°x1.13° at 336mm (2.0x)	60.8°x47.5° at 7.5mm 3.2°x2.4° at 158mm 32.7°x24.8° at 15mm 1.6°x1.2° at 316mm (2.0x)	60.1°x46.9° at 7.6mm 3.9°x2.9° at 130mm 32.3°x24.5° at 15.2mm 1.9°x1.5° at 260mm (2.0x)	91.3°x75.0° at 4.3mm 8.4°x6.3° at 60mm 54.2°x42.0° at 8.6mm 4.2°x3.2° at 120mm (2.0x)
64.6°x39.1° at 7.6mm 3.27°x1.84° at 168mm 35.1°x20.1° at 15.2mm 1.64°x0.92° at 336mm (2.0x)	65.2°x39.6° at 7.5mm 3.5°x2.0° at 158mm 35.5°x20.4° at 15mm 1.7°x1.0° at 316mm (2.0x)	64.6°x39.1° at 7.6mm 4.2°x2.4° at 130mm 35.1°x20.1° at 15.2mm 2.1°x1.2° at 260mm (2.0x)	96.3°x64.2° at 4.3mm 9.1°x5.2° at 60mm 58.3°x34.9° at 8.6mm 4.6°x2.6° at 120mm (2.0x)
0.85m (10mm with Macro)	0.85m (10mm with Macro)	0.56m (10mm with Macro)	0.3m (10mm with Macro)
1.11m	1.16m	0.81m	0.59m
92.5x69.4cm at 7.6mm 4.25x3.19cm at 168mm 46.3x34.7cm at 15.26mm 2.13x1.6cm at 336mm (2.0x)	110.1x82.6cm at 7.5mm 5.1x3.8cm at 158mm 55.1x41.3cm at 15mm 2.6x1.9cm at 316mm (2.0x)	59.9x44.9cm at 7.6mm 3.7x2.8cm at 130mm 30.0x22.5cm at 15.2mm 1.9x1.4cm at 260mm (2.0x)	69.9x52.4cm at 4.3mm 4.8x3.6cm at 60mm 35.0x26.2cm at 8.6mm 2.4x1.8cm at 120mm (2.0x)
100.6x56.6cm at 7.6mm 4.60x2.60cm at 168mm 50.3x28.4cm at 15.2mm 2.30x1.30cm at 336mm (2.0x)	120.4x67.7cm at 7.5mm 5.6x3.2cm at 158mm 60.2x33.9cm at 15mm 2.8x1.6cm at 316mm (2.0x)	65.4x36.8cm at 7.6mm 4.0x2.3cm at 130mm 32.7x18.4cm at 15.2mm 2.0x1.2cm at 260mm	76.4x43cm at 4.3mm 5.2x2.9cm at 60mm 38.2x21.5cm at 8.6mm 2.6x1.5cm at 120mm (2.0x)
169.4x111.9x221.4mm	179.9x122.3x260.1mm	164x106.5x206.4mm	163.5x110.8x247.8mm
1.83kg(4.04lbs)/1.93kg(4.27lbs)	2.63kg (5.81lbs)/2.73kg (6.03lbs)	1.62kg (3.56lbs)/1.72kg (3.78lbs)	1.99kg (4.39lbs)/2.07kg (4.56lbs)

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras, as explained on page 9.

50.7°x39.1° at 7.6mm 2.46°x1.84° at 168mm 26.6°x20.1° at 15.2mm 1.22°x0.92° at 336mm (2.0x)	51.3°x39.6° at 7.5mm 2.6°x2.0° at 158mm 27.0°x20.4° at 15mm 1.3°x1.0° at 316mm (2.0x)	50.7°x39.1° at 7.6mm 3.2°x2.4° at 130mm 26.6°x20.1° at 15.2mm 1.6°x1.2° at 260mm (2.0x)	79.9°x64.2° at 4.3mm 6.9°x5.2° at 60mm 45.4°x34.9° at 8.6mm 3.4°x2.6° at 120mm (2.0x)
--	--	--	--

2/3" ENG/EFP Lenses

SDTV

IFxs DIGITAL DRIVE DD



J35ex15B IASD

IFxs DIGITAL DRIVE DD



J35ex11B IASD

IFxs



J22ex7.6B IRSE/IASE

Zoom Ratio		35x	35x	22x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		15~525mm 30~1050mm	11~385mm 22~770mm	7.6~168mm 15.2~336mm
Maximum Relative Aperture (with Extender)		1:2.7 at 15~301.5mm 1:4.7 at 525mm 1:5.4 at 30~602mm 1:9.4 at 1050mm	1:2.0 at 11~226.5mm 1:3.4 at 385mm 1:4.0 at 22~453mm 1:6.8 at 770mm	1:1.8 at 7.6~118.6mm 1:2.55 at 168mm 1:3.6 at 15.2~237.2mm 1:5.1 at 336mm
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	32.7°x24.8° at 15mm 0.96°x0.72° at 525mm 16.7°x12.6° at 30mm 0.48°x0.36° at 1050mm	43.6°x33.4° at 11mm 1.31°x0.98° at 385mm 22.6°x17.1° at 22mm 0.65°x0.49° at 770mm	60.1°x46.9° at 7.6mm 3.0°x2.3° at 168mm 32.3°x24.5° at 15.2mm 1.5°x1.1° at 336mm
	16:9 Aspect Ratio (9.6x5.4mm)	35.5°x20.4° at 15mm 1.05°x0.59° at 525mm 18.2°x10.3° at 30mm 0.52°x0.29° at 1050mm	47.1°x27.6° at 11mm 1.43°x0.80° at 385mm 24.6°x14.0° at 22mm 0.71°x0.40° at 770mm	64.6°x39.1° at 7.6mm 3.3°x1.8° at 168mm 35.1°x20.1° at 15.2mm 1.6°x0.9° at 336mm
M.O.D. from Lens Front		2.2m(50mm with Macro)	2.2m(50mm with Macro)	0.8m (10mm with Macro)
M.O.D. from Image Plane		2.57m	2.56m	1.06m
Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	118.3x88.7cm at 15mm 3.5x2.6cm at 525mm 59.2x44.4cm at 30mm 1.8x1.4cm at 1050mm	161.9x121.4cm at 11mm 4.7x3.5cm at 385mm 81.0x61.0cm at 22mm 2.4x1.8cm at 770mm	87.4x65.6cm at 7.6mm 4.0x3.0cm at 168mm 43.7x32.8cm at 15.2mm 2.0x1.5cm at 336mm
	16:9 Aspect Ratio (9.6x5.4mm)	129.2x72.7cm at 15mm 3.8x2.1cm at 525mm 64.6x36.4cm at 30mm 1.9x1.1cm at 1050mm	176.8x99.5cm at 11mm 5.1x2.9cm at 385mm 88.4x49.8cm at 22mm 2.6x1.5cm at 770mm	95.0x53.4cm at 7.6mm 4.4x2.5cm at 168mm 47.5x26.7cm at 15.2mm 2.2x1.2cm at 336mm
Approx.Size (WxHxL)		169.5x143x330mm	169.5x143x316mm	169.4x111.9x218.6mm
Approx.Mass (IRSE/IASE)		— / 4.5kg (9.94lbs)	— / 4.5kg (9.83lbs)	1.79kg (3.95lbs)/1.89kg (4.17lbs)

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras, as explained on page 9.

Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	27.0°x20.4° at 15mm 0.79°x0.59° at 525mm 13.7°x10.3° at 30mm 0.39°x0.29° at 1050mm	36.3°x27.6° at 11mm 1.07°x0.80° at 385mm 18.6°x14.0° at 22mm 0.53°x0.40° at 770mm	50.7°x39.1° at 7.6mm 2.5°x1.8° at 168mm 26.6°x20.1° at 15.2mm 1.2°x0.9° at 336mm
--	--	---	--	---

- Refer to page 11, regarding the difference between HDTV and SDTV lenses. Please note that HDTV lenses also perform excellently when they are adopted to SDTV cameras.
- Please refer to page 33 for explanation about IRSE/IASE.
- M.O.D. = Minimum Object Distance
- IRSE Digital Drive Units come equipped with Zoom and Iris Encoders only. A Focus Encoder is available as an option in these units. IASE Digital Drive Units come equipped with Zoom, Iris and Focus Encoders.

OIFxS



J11ex4.5B IRSE/IASB

11x

2/3"

2.0x

4.5~50mm

9~100mm (2.0x)

1:1.8 at 4.5~36mm

1:2.35 at 50mm

1:3.6 at 9~72mm (2.0x)

1:4.7 at 100mm

88.7°x72.5° at 4.5mm

10.1°x7.6° at 50mm

52.1°x40.3° at 9mm (2.0x)

5.0°x3.8° at 100mm

93.7°x61.9° at 4.5mm

11.0°x6.2° at 50mm

56.1°x33.4° at 9mm (2.0x)

5.5°x3.1° at 100mm

0.3m(10mm with Macro)

0.58m

67.9x50.9cm at 4.5mm

5.9x4.4cm at 50mm

34.0x25.5cm at 9mm (2.0x)

3.0x2.2cm at 100mm

74.4x41.7cm at 4.5mm

6.4x3.6cm at 50mm

37.0x20.8cm at 9mm (2.0x)

3.2x1.8cm at 100mm

168.2x110.6x237.7mm

1.83kg (4.03lbs)/1.93kg (4.25lbs)

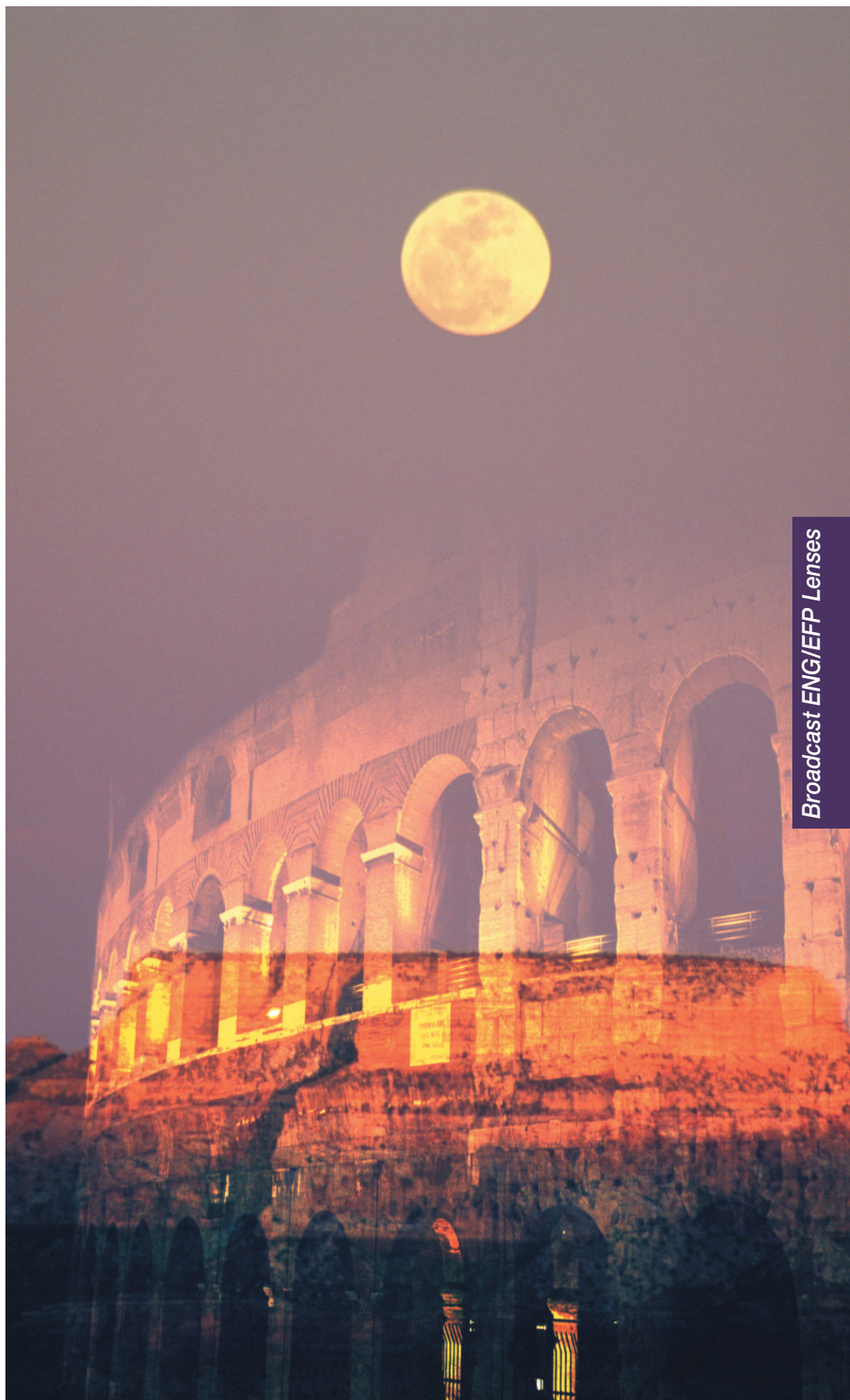
Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras.

77.3°x61.9° at 4.5mm

8.24°x6.18° at 50mm

43.6°x33.4° at 9mm (2.0x)

4.12°x3.09° at 100mm



Broadcast ENG/EFP Lenses

HDgc Series ENG Lenses

■ The HDgc is a lens series consists of a variety of HDTV ENG Lenses for 2/3" , 1/2" and 1/3" image size cameras. The HDgc series will support the emergence of an important new generation of cost-effective HD acquisition systems.

■ Please refer to Page 7 for the introduction of the HDgc Series.



For 2/3" Cameras



For 1/2" Cameras



For 1/3" Cameras

HDgc Series Lenses (With Extender)

HDTV/SDTV

HDGC



KJ21ex7.6B IRSE

HDGC



KJ17ex7.7B IRSE/IASE **NEW**

HDGC



KJ10ex4.5B IRSE



2/3"

Zoom Ratio		21x	17x	10x
Image Size		2/3"	2/3"	2/3"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		7.6~160mm 15.2~320mm (2.0x)	7.7~131mm 15.4~262mm (2.0x)	4.5~45mm 9~90mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.8 at 7.6~112.9mm 1:2.55 at 160mm 1:3.6 at 15.2~225.9mm 1:5.1 at 320mm (2.0x)	1:1.8 at 7.7~102.5mm 1:2.3 at 131mm 1:3.6 at 15.4~205mm 1:4.6 at 262mm (2.0x)	1:1.8 at 4.5~34.5mm 1:2.35 at 45mm 1:3.6 at 9~68.9mm 1:4.7 at 90mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	60.1°x46.9° at 7.6mm 3.2°x2.4° at 160mm 32.3°x24.5° at 15.2mm 1.6°x1.2° at 320mm (2.0x)	59.5°x46.4° at 7.7mm 3.85°x2.89° at 131mm 31.9°x24.2° at 15.4mm 1.92°x1.44° at 262mm (2.0x)	88.7°x72.5° at 4.5mm 11.2°x8.4° at 45mm 52.1°x40.3° at 9mm 5.6°x4.2° at 90mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	64.6°x39.1° at 7.6mm 3.4°x1.9° at 160mm 35.1°x20.1° at 15.2mm 1.7°x1.0° at 320mm (2.0x)	63.9°x38.6° at 7.7mm 4.2°x2.36° at 131mm 34.6°x19.9° at 15.4mm 2.1°x1.18° at 262mm (2.0x)	93.7°x61.9° at 4.5mm 12.2°x6.9° at 45mm 56.1°x33.4° at 9mm 6.1°x3.4° at 90mm (2.0x)
M.O.D. from Lens Front		0.8m (10mm with Macro)	0.6m (10mm with Macro)	0.3m (10mm with Macro)
Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	87.4x65.6cm at 7.6mm 4.0x3.0cm at 160mm 43.7x32.8cm at 15.2mm 2.0x1.5cm at 320mm (2.0x)	63.1x47.3cm at 7.7mm 3.8x2.9cm at 131mm 31.6x23.7cm at 15.4mm 1.9x1.5cm at 262mm (2.0x)	67.9x50.9cm at 4.5mm 5.9x4.4cm at 45mm 34.0x25.5cm at 9mm 3.0x2.2cm at 90mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	95.0x53.4cm at 7.6mm 4.4x2.5cm at 160mm 47.5x26.7cm at 15.2mm 2.2x1.2cm at 320mm (2.0x)	68.5x38.5cm at 7.7mm 4.2x2.4cm at 131mm 34.3x19.3cm at 15.4mm 32.1x1.2cm at 262mm (2.0x)	74.1x41.7cm at 4.5mm 6.4x3.6cm at 45mm 37.0x20.8cm at 9mm 3.2x1.8cm at 90mm (2.0x)
Approx. Size (WxHxL)		169.4x111.9x218.6mm	159.3x106.6x197.8mm	168.2x110.6x237.7mm
Approx. Mass		1.79kg (3.95lbs)	1.48kg (3.26lbs)/1.56kg(3.44lbs)	1.83kg (4.04lbs)

- All the IRSE/IASE lenses are equipped with Canon's Enhanced Digital Drive. Please see page 31-32 for the detail information.
- "IRSD PS12" model for KJ21ex/KJ17ex/KJ10ex is available as an exclusive model for Panasonic AJ-HPX500.
- For control accessories, please refer to page 33 and 34.
- Please refer to page 33 for explanation about IRSE/IASE.
- M.O.D. = Minimum Object Distance.
- For KJ17ex, IRSE / IAse Digital Drive Units come equipped with Zoom, Iris and Focus Encoders. For KJ10ex and KJ21ex, IRSE Digital Drive Unit come equipped with Zoom and Iris Encoders only. A Focus Encoder is available as an option in these units.

HDgc Series Lenses (With Extender)

HDTV/SDTV

HDGC



KH21ex5.7 IRSE

HDGC



KH16ex5.7 IRSE

HDGC



KH10ex3.6 IRSE



1/2"

Zoom Ratio		21x	16x	10x
Image Size		1/2"	1/2"	1/2"
Built-in Extender		2.0x	2.0x	2.0x
Range of Focal Length (with Extender)		5.7~120mm 11.4~240mm (2.0x)	5.7~92mm 11.4~184mm (2.0x)	3.6~36mm 7.2~72mm (2.0x)
Maximum Relative Aperture (with Extender)		1:1.4 at 5.7~86mm 1:1.95 at 120mm 1:2.8 at 11.4~172mm 1:3.9 at 240mm (2.0x)	1:1.4 at 5.7~71.6mm 1:1.8 at 92mm 1:2.8 at 11.4~143.1mm 1:3.6 at 184mm (2.0x)	1:1.45 at 3.6~27mm 1:1.90 at 36mm 1:2.9 at 7.2~55mm 1:3.8 at 72mm (2.0x)
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	58.6°x45.7° at 5.7mm 3.0°x2.3° at 120mm 31.4°x23.8° at 11.4mm 1.5°x1.1° at 240mm (2.0x)	58.6°x45.7° at 5.7mm 4.0°x3.0° at 92mm 31.4°x23.8° at 11.4mm 2.0°x1.5° at 184mm (2.0x)	83.3°x67.4° at 3.6mm 10.2°x7.6° at 36mm 47.9°x36.9° at 7.2mm 5.0°x3.8° at 72mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	62.9°x38.0° at 5.7mm 3.3°x1.9° at 120mm 34.0°x19.5° at 11.4mm 1.7°x0.9° at 240mm (2.0x)	62.9°x38.0° at 5.7mm 4.3°x2.4° at 92mm 34.0°x19.5° at 11.4mm 2.1°x1.2° at 184mm (2.0x)	88.1°x57.1° at 3.6mm 11.1°x6.2° at 36mm 51.7°x30.5° at 7.2mm 5.5°x3.1° at 72mm (2.0x)
M.O.D. from Lens Front		0.8m (10mm with Macro)	0.6m (10mm with Macro)	0.3m (10mm with Macro)
Object Dimensions at M.O.D. (with Extender)	4:3 Aspect Ratio (8.8x6.6mm)	84.9x63.7cm at 5.7mm 3.9x2.9cm at 120mm 42.5x31.9cm at 11.4mm 2.0x1.5cm at 240mm (2.0x)	61.9x46.4cm at 5.7mm 3.8x2.9cm at 92mm 31.0x23.2cm at 11.4mm 1.9x1.5cm at 184mm (2.0x)	61.3x46.0cm at 3.6mm 5.4x4.1cm at 36mm 30.7x23.0cm at 7.2mm 2.7x2.0cm at 72mm (2.0x)
	16:9 Aspect Ratio (9.6x5.4mm)	92.2x51.9cm at 5.7mm 4.3x2.4cm at 120mm 46.1x26.0cm at 11.4mm 2.2x1.2cm at 240mm (2.0x)	67.2x37.8cm at 5.7mm 4.1x2.3cm at 92mm 33.6x18.9cm at 11.4mm 2.1x1.2cm at 184mm (2.0x)	67.4x37.9cm at 3.6mm 5.9x3.3cm at 36mm 33.7x19.0cm at 7.2mm 3.0x1.7cm at 72mm (2.0x)
Approx. Size (WxHxL)		169.4x111.9x217.5mm	163.9x106.3x196.7mm	168.2x110.6x240.8mm
Approx. Mass		1.79kg (3.95lbs)	1.47kg (3.24lbs)	1.83kg (4.04lbs)

•All the IRSE lenses are equipped with Canon's Enhanced Digital Drive. Please see page 31-32 for the detail information.

•For control accessories, please refer to page 33 and 34.

•Please refer to page 33 for explanation about IRSE.

•M.O.D. = Minimum Object Distance.

•IRSE Digital Drive Unit come equipped with Zoom and Iris Encoders only. A Focus Encoder is available as an option in these units.

HDgc Series Lenses (Without Extender)

HDTV/SDTV (For 2/3" 1/2" 1/3")

HDGC



KJ20x8.5B KRSD

HDGC



KJ13x6B KRS



HDGC



KH20x6.4 KRS

Zoom Ratio	20x	13x	20x
Image Size	2/3"	2/3"	1/2"
Range of Focal Length	8.5~170mm	6~78mm	6.4~128mm
Maximum Relative Aperture	1:1.8 at 8.5~113.3mm 1:2.7 at 170mm	1:2.0 at 6~58mm 1:2.7 at 78mm	1:1.4 at 6.4~89.6mm 1:2.0 at 128mm
Angular Field of View 16.9 Aspect Ratio (9.6x5.4mm)	58.9°x35.2° at 8.5mm 3.2°x1.8° at 170mm	77.3°x48.5° at 6mm 7.0°x4.0° at 78mm	57.1°x34.1° at 6.4mm 3.1°x1.8° at 128mm
M.O.D. from Lens Front	0.9m (10mm with Macro)	0.4m (10mm with Macro)	0.9m (10mm with Macro)
Object Dimensions at M.O.D. 16.9 Aspect Ratio (9.6x5.4mm)	92.5x52.0cm at 8.5mm 4.8x2.7cm at 170mm	74.3x41.8cm at 6mm 5.4x3.0cm at 78mm	89.8x50.5cm at 6.4mm 4.6x2.6cm at 128mm
Approx. Size (WxHxL)	163.3x103x170.4mm	165.4x105.1x211.7mm	163.3x103x182.5mm
Approx. Mass	1.27kg (2.8lbs)	1.59kg (3.51lbs)	1.27kg (2.8lbs)

•For control accessories, please refer to page 41.

•M.O.D. = Minimum Object Distance.

•KJ20x8.5B KRSD is as an exclusive model for Panasonic AJ-HPX500.

HDGC



KH19x6.7-II KAS*1

HDGC



KH13x4.5 KRS



HDGC



KT20x5B KRS

Zoom Ratio	19x	13x	20x
Image Size	1/2"	1/2"	1/3"
Range of Focal Length	6.7~127mm	4.5~59mm	5~100mm
Maximum Relative Aperture	1:1.6 at 6.7~96.8mm 1:2.1 at 127mm	1:1.5 at 4.5~44mm 1:2.0 at 59mm	1:1.4 at 5.0~90.3mm 1:1.55 at 100mm
Angular Field of View 16.9 Aspect Ratio (9.6x5.4mm)	55.0°x32.6° at 6.7mm 3.1°x1.8° at 127mm	75.7°x46.9° at 4.5mm 6.8°x3.8° at 59mm	51.9°x30.6° at 5mm 2.8°x1.6° at 100mm
M.O.D. from Lens Front	0.9m (50mm with Macro)	0.4m (10mm with Macro)	0.9m (10mm with Macro)
Object Dimensions at M.O.D. 16.9 Aspect Ratio (9.6x5.4mm)	98.1x55.2cm at 6.7mm 8.1x4.6cm at 127mm	73.4x41.3cm at 4.5mm 5.4x3.0cm at 59mm	82.1x46.2cm at 5.0mm 4.2x2.4cm at 100mm
Approx. Size (WxHxL)	112x88x171.8mm	165.4x105.1x215.3mm	163.3x103x171.2mm
Approx. Mass	1.26kg (2.78lbs)	1.59kg (3.51lbs)	1.19kg (2.62lbs)

*1 Specifically designed for SONY HDC-X300/X310 and the XDCAM HD.

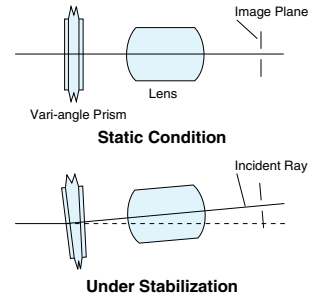
•For control accessories, please refer to page 41.

•M.O.D. = Minimum Object Distance.

Vari-angle Prism Optical Image Stabilizer

IMAGE
STABILIZER

Canon introduces the “Vari-angle Prism” image stabilizer (VAP-IS), our patented breakthrough technology, the world’s first Optical Image Stabilization solution provided for broadcast ENG/EFP lenses. Normally light rays from a subject pass through the lens to the image plane. However, a vibration given to the camera causes image shaking, resulting in an unsteady image. The VAP-IS component is composed of two pieces of flat glass joined by a flexible bellows that can expand and contract as required. The space between the glass planes is filled with a special liquid, which exhibits a high refractive index. When the VAP-IS component is placed between the subject and the optical system, the angle of the component can be changed according to the vibration angle related to the axis of light in the lens. This controls the angle of refraction of the light ray so that it reaches the image plane, free of shake. The VAP-IS covers a wide bandwidth of frequencies, which include high frequencies that are often encountered with moving vehicles, helicopters as well as other unsteady platforms and will dramatically improve the video quality in such environments. The VAP-IS technology is available in the “IS-20BII” Adaptor which is capable of operating on many Canon lenses.



IS-20B II *

The IS-20BII Image Stabilizer Adaptor is designed to be front mounted on Canon’s range of J22ex7.6B, J21ax7.8B, J20ax8B, J17ex7.7B, J17ax7.7B, J16ax8B, J15ax8B and their 1/2” counterpart ENG lenses. The full specifications of the lens including the 2x extender can be used with the IS-20BII and the adaptor does not cause any light loss. An additional 12V power supply is necessary to power the IS-20BII (not included).



IS-20BII

IMAGE
STABILIZER

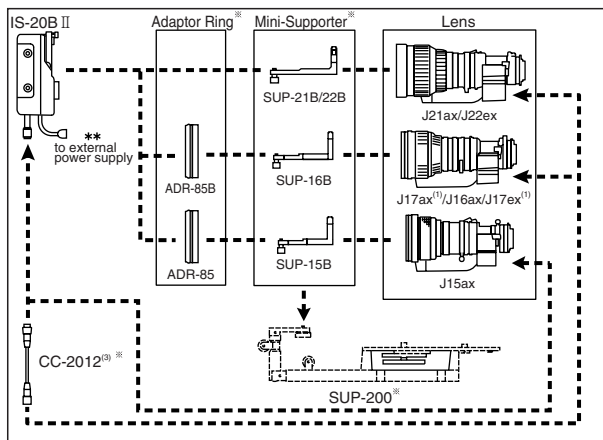
APPLICATION

System			Applicable Lenses					
Style	Description		Model name	J15ax	J16ax J17ax(1) J17ex(1)	J20ax	J21ax	J22ex
ENG USE	image stabilizer unit		IS-20BII	●	●	●	●	●
	Parts for IS-20BII	Mini-supporter	SUP-15B	●				
			SUP-16B		●			
			SUP-20B			●		
			SUP-21B				●	
			SUP-22B					●
		Adaptor Ring	ADR-85	●	●(2)			
EFP USE	Supporter	SUP-200	●	●	●	●	●	
DIGITAL DRIVE USE	conv.cable(20pM-12pF)	CC-2012		●(3)		●(3)	●(3)	

SPECIFICATIONS

Applicable Lens	J22ex, J21ax, J20ax, J17ex, J17ax, J16ax, J15ax
Power	External DC12V/3Ah minimum with a 4 pin XLR connector. The power supply is not included.
Size	178.5x150.5x68.5mm
Mass	1.6kg (3.53lbs)

System Configuration



- (1) The picture corners are slightly eclipsed at wide angle.
- (2) ADR-85B is required for the J16ax, J17ax and the J17ex.
- (3) Please contact a Canon office for information.

※ Optional items

** Note

Pin assignment of the battery cable is as follows :

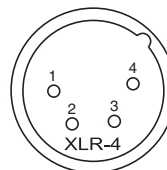
Type of connector : XLR-4-12C

Pin assignment : No.1 0V(Ground)

No.2 No connection

No.3 No connection

No.4 +12V DC



* IS-20BII is for stock sales only.

Features: Digital Drive ENG/EFP Lenses

With the introduction of the e-IFxs and the e-HDxs series that has enhanced our well known “Digital Drive”, all of our broadcast SDTV and HDTV lenses offer many features, which has also been inherited to our new HDxs and HDgc (IRSE / IASE model) lenses. The concept of enhanced “Digital Drive” is based on “Ease of Operation” for our customers.

1. Three Preset Functions

Canon Digital Drive provides the following “three preset functions” that have become possible with digital technology.

Shuttle Shot



By memorizing any two focal lengths, the Digital Drive can automatically “shuttle” between the two points, moving in either direction.



Frame Preset



An angle of view can be preset in either of two memories (DD: one memory) and the lens will zoom to that position by pushing a simple button. During a performance, frame preset will reproduce the zoom position decided upon at the rehearsal. It's easy to repeat the same zoom as often as you like at the highest speed or in a preset zoom speed.



Speed Preset



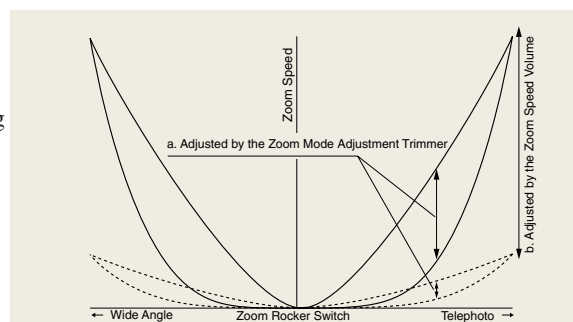
A specific zoom speed can be preset in memory and it is possible to repeat the zoom speed as often as you like by pushing a simple button.



2. Zoom Mode Select



One of several operational curves can be chosen which will allow different zoom movement characteristics when operating the seesaw switch. This is accomplished as a linear adjustment as opposed to an adjustment done in steps.

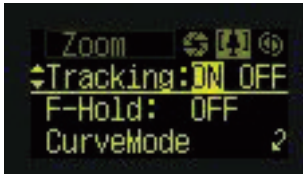


3. User-Customized Setting



The drive unit can memorize 9 patterns of user-customized settings and also transmit the data between different drive units.

4. Zoom Track



“Zoom Track” allows the camera operator to adjust the electronic focal length to their desired range by memorizing zoom positions at both the tele and the wide side of the zoom.



5. Ergonomic Drive Unit

The HDxs/e-IFxs/HDgc (IRSE / IASE model) Ergonomic Drive Unit is tilted at an ideal angle of 12.5° to realize good balance and comfort.

A new information display has been added which now allows the user to customize the enhanced digital functions easily, precisely and fully.

The enhanced digital functions are easily accessed and set via the Digital Function Selector, an X-Y axis switch located next to the display.



6. Improved Maximum Zoom and Focus Servo Speed

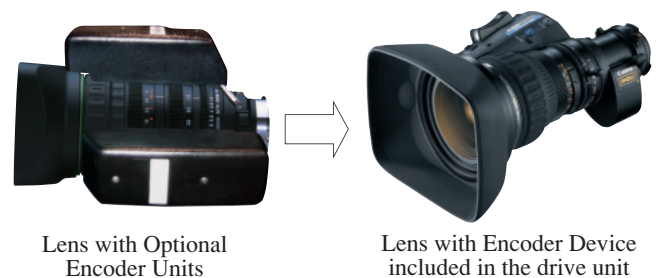
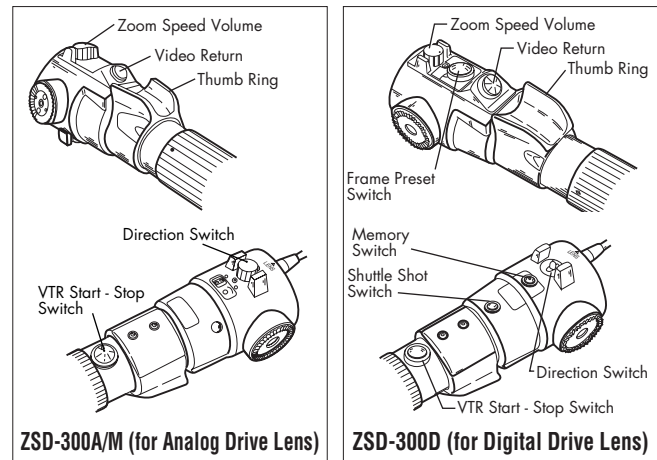
Zoom: 0.5 sec., Focus: 1.5 sec.

7. Demand Series to Support Digital Function

Canon offers a series of servo controllers for Digital Drive lenses. The ZSD-300D (zoom demand), FPD-400D (focus demand) and FPM-420D (focus servo module) to support the Digital Driver's unique functions. These demands are connected to the “Digital Drive” via a 20 pin one-touch type connector, which makes the connecting and disconnecting easier and quicker. Also with the FPD-400D, focus servo operational curve can be selected unlike the conventional focus demand. The digital series of demands and the conventional demands have complete compatibility with each other, except for the unique digital functions. (A conversion cable may be required. Please refer to page 29 and 31.)

8. Compatibility with Virtual Studio System

Canon has a series of HDxs/e-IFxs/HDgc (IRSE / IASE model) lenses, which are equipped with an enhanced digital drive unit. Conventional potentiometers are analog positional sensors capable of only 8-10 bit equivalent resolution. Thus virtual studio systems with portable lenses called for an optional Encoder Unit to be put on the zoom and focus ring of the lens. With the introduction of 16 bit resolution Rotary Encoder Devices built into the enhanced digital drive unit, the lens can be simply integrated into a virtual digital studio system without any additions. The encoders also enable superior precise control. The zoom servo provides a dynamic range of 0.5 sec. quick zooms to over a 5 min. super slow zoom. Repeatability in focus and iris control are also much more precise. Canon's unique technology has made the Encoder Device surprisingly small to be installed in the existing drive unit without changes in size or weight.

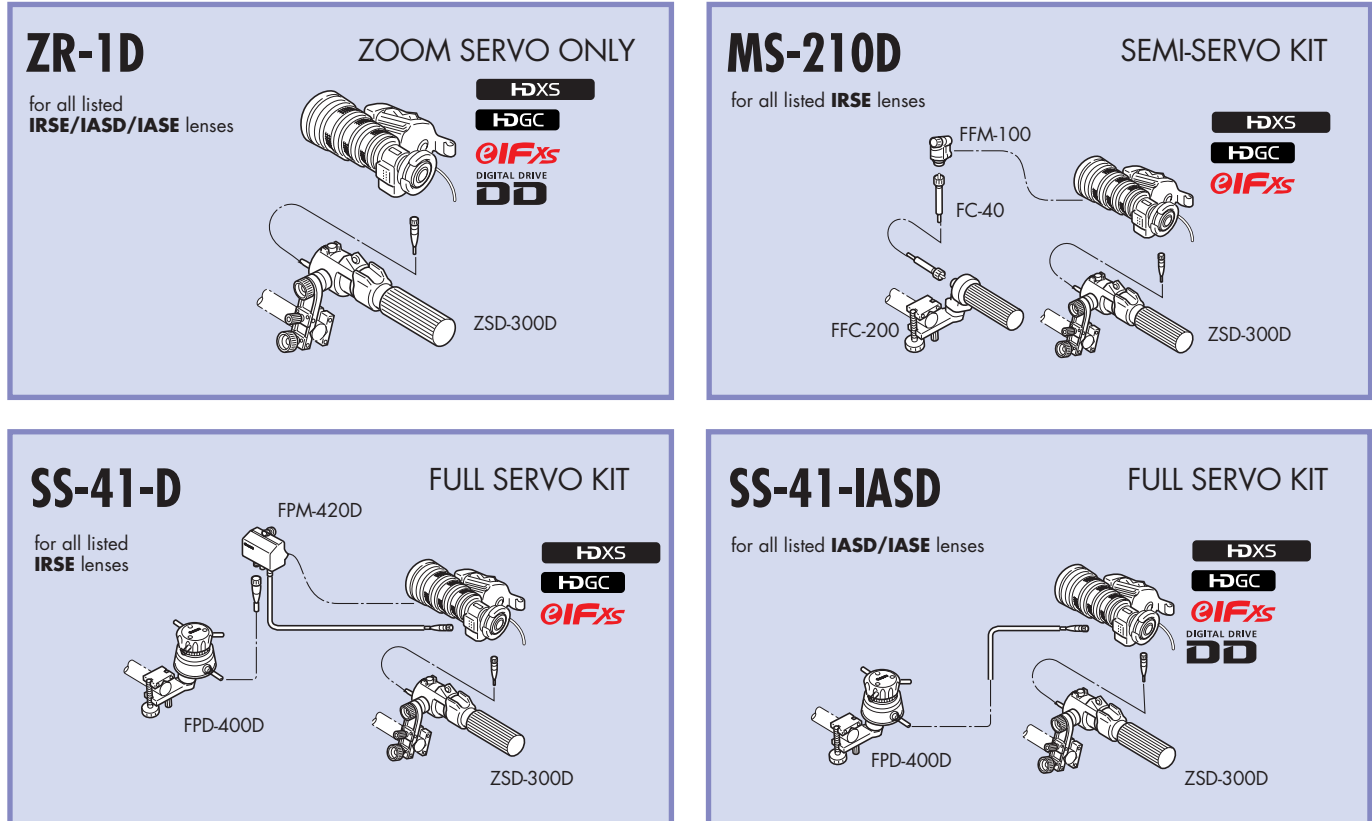


DIGITAL

Control Accessories of Digital Drive ENG/EFP Lenses

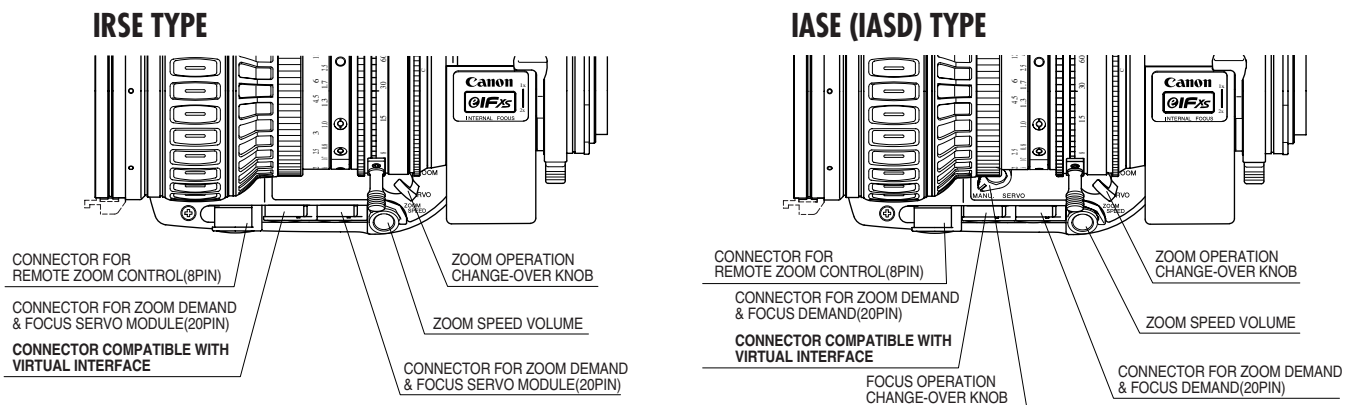
J11ex4.5B/J22ex7.6B/J35ex11B/J35ex15B/KJ21ex7.6B/KJ17ex7.7B/KJ10ex4.5B/KH21ex5.7/KH16ex5.7/KH10ex3.6/HJ14ex4.3B/HJ17ex7.6B/HJ18ex28B/HJ21ex7.5B/HJ22ex7.6B/HJ40x10B/HJ40x14B

Recommended Kit Configuration



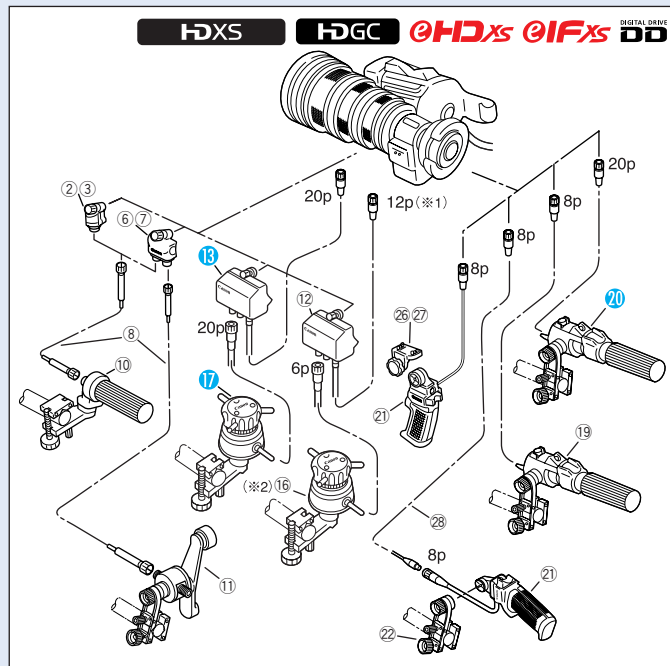
The Difference between IRSE and IASE (IASD) type lenses

The IRSE lenses are the standard type of Portable lens with a Servo Zoom Digital Drive Unit. For Servo Focus operation, IRSE lenses require both a Servo Focus Module and a Servo Focus Demand. The IASE (IASD) lenses are a special type of Portable lens equipped with a Digital Drive Unit offering both Servo Zoom and Focus. For Servo Focus operation, IASE (IASD) lenses only require a Servo Focus Demand. The IASE (IASD) lenses can be used in both the Studio and the Field.



• The telephoto lenses (HJ40x, J35ex) are not compatible with virtual interfaces.

Applicable Component Detail



- (※1) CC-2012 conversion cable is necessary to connect between IRSE Digital Drive Lens and FPM-420.
 (※2) CC-2006 conversion cable is necessary to connect between IASD/IASE Digital Drive Lens and FPD-400.
 (※3) ZSD-300A/M, ZSG-200A and FPD-400 is not available.

#	Unit	Description	CODE
②	FFM-100	Flex Focus Module	1824A015
③	FFM-300	Flex Focus Module	1824A016
⑥	FFM-200	Flex Dual Module	1824A013
⑦	FFM-400	Flex Dual Module	-
⑧	FC-40	Flex Cable	1824A010
⑩	FFC-200	Flex Focus Controller	1824A014
⑪	FZC-100	Flex Zoom Controller	1824A021
⑫	FPM-420	Focus Positional Servo Module	1824A026
⑬	FPM-420D	Focus Positional Servo Module	1824A129
⑯	FPD-400	Focus Positional Demand (※3)	1824A018
⑰	FPD-400D	Focus Positional Demand	1824A124
⑲	ZSD-300A/M	Zoom Demand (※3) (A or M types, depends on applicable camera)*	A 1824A066 M 1824A067
⑳	ZSD-300D	Zoom Demand	1824A123
㉑	ZSG-200A/M	Zoom Servo Grip (※3) (A or M types, depends on applicable camera)*	A 1824A068 M 1824A069
㉒	CR-10	Clamper	1824A007
㉔	ZGA-400**	Grip Adapter	0025T616
㉕	ZGA-500**	Grip Adapter	0043T088
㉖	ZGA-600**	Grip Adapter	
㉘	EC-80	Zoom Extension Cable (8P)	1824A009
㉚	CC-2006	Conv. Cable (20pM-6pF)	1824A125
㉛	CC-2012	Conv. Cable (20pM-12pF)	1824A126

Applicable Kit Detail

		Zoom		Focus	
	Kit Name	System	Component	System	Component

For IRSE Type Lenses

Zoom Servo Only	--	ZR-1	⑰	--	--
	(ZR-1D)	ZR-1D	㉒	--	--
	--	ZR-2(A)	㉑ ㉒ ㉘	--	--
Semi-Servo	--	ZR-2(B)	㉑ (㉔ or ㉕)	--	--
	MS-210	ZR-1	⑰	FR-2	② ⑧ ⑩
	MS-210D	ZR-1D	㉒	FR-2	② ⑧ ⑩
Full Servo	MS-220	ZR-2(A)	㉑ ㉒ ㉘	FR-2	② ⑧ ⑩
	SS-41-20	ZR-1	⑰	FPS-4	⑫ ⑯ ㉛
	SS-41-D	ZR-1D	㉒	FPS-4D	⑬ ⑰
Full Manual	SS-420	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑫ ⑯ ㉛
	--	FZC-1	⑥ ⑧ ⑪	FR-2(w/o ②)	⑧ ⑩

		Zoom		Focus	
	Kit Name	System	Component	System	Component

For HJ40x14B, HJ40x10B, J35ex15B, J35ex11B

Zoom Servo Only	--	ZR-1	⑰	--	--
	--	ZR-1D	㉒	--	--
	--	ZR-2(A)	㉑ ㉒ ㉘	--	--
Semi-Servo	--	ZR-1	⑰	FR-2	③ ⑧ ⑩
	--	ZR-1D	㉒	FR-2	③ ⑧ ⑩
	--	ZR-2(A)	㉑ ㉒ ㉘	FR-2	③ ⑧ ⑩
Full Servo	SS-41-IAS	ZR-1	⑰	FPS-4	⑯ ㉛
	SS-41-IASD	ZR-1D	㉒	FPS-4D	⑰
	SS-42-IAS	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑯ ㉛
Full Manual	--	FZC-1	⑦ ⑧ ⑪	FR-2(w/o ③)	⑧ ⑩

For IASE Type Lenses (Except HJ40x, J35ex)

Zoom Servo Only	--	ZR-1	⑰	--	--
	(ZR-1D)	ZR-1D	㉒	--	--
	--	ZR-2(A)	㉑ ㉒ ㉘	--	--
Semi-Servo	--	ZR-2(B)	㉑ (㉔ or ㉕)	--	--
	MS-210	ZR-1	⑰	FR-2	② ⑧ ⑩
	MS-210D	ZR-1D	㉒	FR-2	② ⑧ ⑩
Full Servo	MS-220	ZR-2(A)	㉑ ㉒ ㉘	FR-2	② ⑧ ⑩
	SS-41-IAS	ZR-1	⑰	FPS-4	⑯ ㉛
	SS-41-IASD	ZR-1D	㉒	FPS-4D	⑰
Full Manual	SS-42-IAS	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑯ ㉛
	--	FZC-1	⑥ ⑧ ⑪	FR-2(w/o ②)	⑧ ⑩

* If a ZSD-300A Demand or ZSG-200A Grip will be used with a DD (Digital Drive) B3 mount lens, please contact a Canon office for special operating instructions.

** ㉔ is for J21ax7.8B/HJ21x7.8B/HJ21x7.5B/HJ18x7.8B/J22ex7.6B/HJ22ex7.6B/KJ21ex7.6B/KH21ex5.7

㉕ is for J11ax4.5B/J16ax8B/J17ax7.7B/HJ14ex4.3B/HJ11x4.7B/HJ9x5.5B/HJ16x8B/HJ17ex7.6B/KJ17ex7.7B/KJ16ex7.7B/KH16ex5.7/KJ10ex7.7B/KH10ex3.6

㉖ is for HJ18ex28B

 Recommended Kit Configuration for the listed lenses.(See Previous Page)

● The controllers support the new DD functions.

ANALOG

Control Accessories of Analog Drive ENG/EFP Lenses

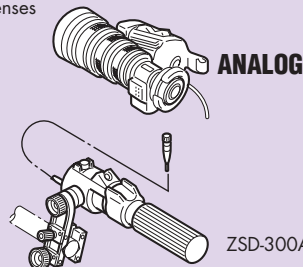
J9ax5.2B/J15ax8B/J16ax8B/J20ax8B/J21ax7.8B/HJ9x5.5B(I)/HJ15x8B/HJ18x7.8B(I)

Recommended Kit Configuration

ZR-1

ZOOM SERVO ONLY

for all listed **IRS/IAS** lenses

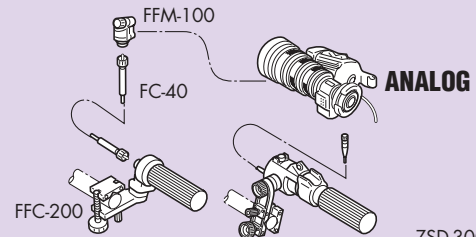


ZSD-300A/M*

MS-210

SEMI-SERVO KIT

for all listed **IRS** lenses

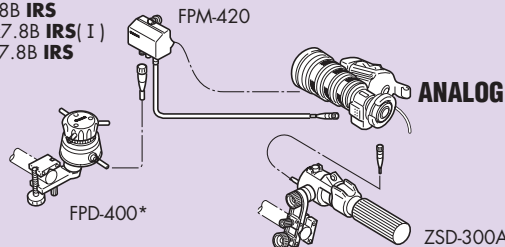


ZSD-300A/M*

SS-41-20

FULL SERVO KIT

for J16ax8B **IRS**
J20ax8B **IRS**
HJ18x7.8B **IRS(I)**
J21ax7.8B **IRS**

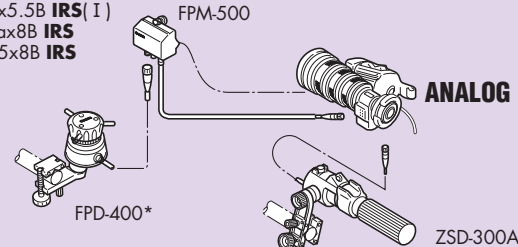


ZSD-300A/M*

SS-410

FULL SERVO KIT

for J9ax5.2B **IRS**
HJ9x5.5B **IRS(I)**
J15ax8B **IRS**
HJ15x8B **IRS**

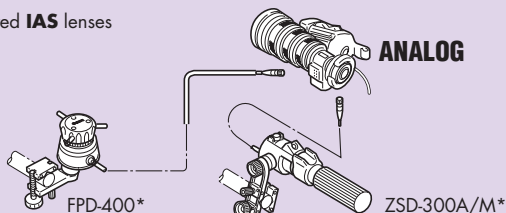


ZSD-300A/M*

SS-41-IAS

FULL SERVO KIT

for all listed **IAS** lenses

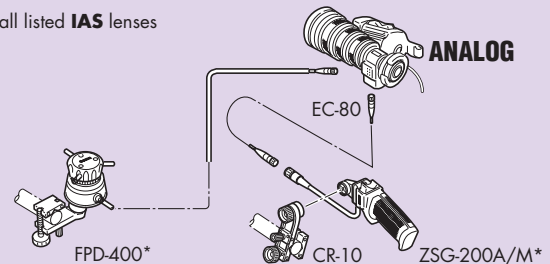


ZSD-300A/M*

SS-42-IAS

FULL SERVO KIT

for all listed **IAS** lenses



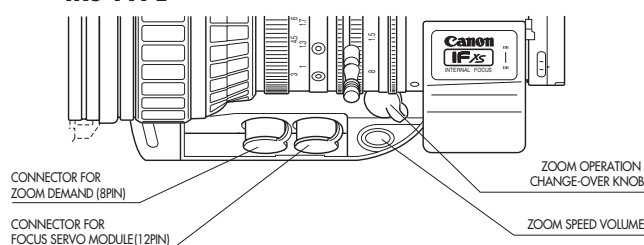
ZSG-200A/M*

*ZSD-300A/M, ZSG-200A, FPD-400 is not available.

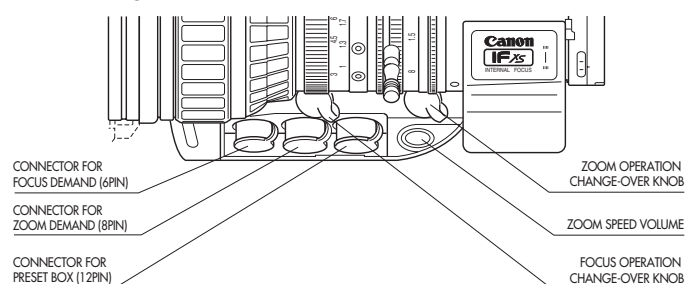
The Difference between IRS and IAS type lenses (Also for Crossover Models)

The IRS lenses are the standard type of portable lens with a Servo Zoom Drive Unit. For Servo Focus operation, IRS lenses require both a Servo Focus Module and a Servo Focus Demand. The IAS lenses are a special type of portable lens equipped with a Drive Unit offering both Servo Zoom and Focus. For Servo Focus operation, IAS lenses only require a Servo Focus Demand. The IAS lenses can be used in both the Studio and the Field.

IRS TYPE

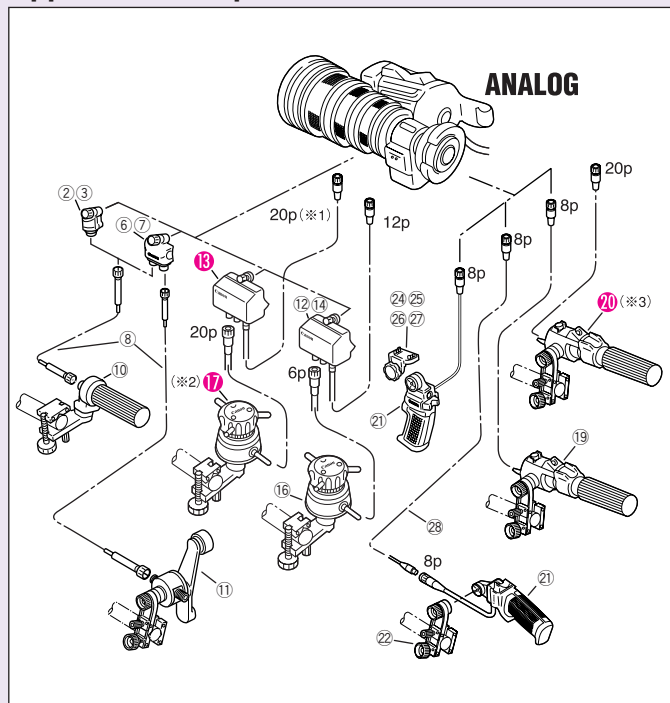


IAS TYPE



ANALOG

Applicable Component Detail



(※1) CC-1220 conversion cable is necessary to connect between IRS Analog Drive Lens and FPM-420D.

(※2) CC-0620 conversion cable is necessary to connect between FPM-420, FPM-500 or IAS Analog Drive Lens and FPD-400D.

(※3) CC-0820 conversion cable is necessary to connect between IRS or IAS Analog Drive Lens and ZSD-300D.

(※4) ZSD-300A/M, ZSG-200A and FPD-400 is not available.

#	Unit	Description	CODE
②	FFM-100	Flex Focus Module	1824A015
③	FFM-300	Flex Focus Module	1824A016
⑥	FFM-200	Flex Dual Module	1824A013
⑦	FFM-400	Flex Dual Module	-
⑧	FC-40	Flex Cable	1824A010
⑩	FFC-200	Flex Focus Controller	1824A014
⑪	FZC-100	Flex Zoom Controller	1824A021
⑫	FPM-420	Focus Positional Servo Module	1824A026
⑬	FPM-420D	Focus Positional Servo Module	1824A129
⑭	FPM-500	Focus Positional Servo Module	1824A027
⑯	FPD-400	Focus Positional Demand (※4)	1824A018
⑰	FPD-400D	Focus Positional Demand	1824A124
⑲	ZSD-300A/M	Zoom Demand (※4)	A 1824A066 M 1824A067
⑳	ZSD-300D*	Zoom Demand	1824A123
㉑	ZSG-200A/M	Zoom Servo Grip (※4)	A 1824A068 M 1824A069
㉒	CR-10	Clamper	1824A007
㉔	ZGA-200**	Grip Adapter	1824A017
㉕	ZGA-300**	Grip Adapter	1824A064
㉖	ZGA-400**	Grip Adapter	0025T616
㉗	ZGA-500**	Grip Adapter	0043T088
㉘	EC-80	Zoom Extension Cable (8P)	1824A009
㉙	CC-0620	Conv. Cable (6pM-20pF)	1824A128
㉚	CC-0820	Conv. Cable (8pM-20pF)	1824A127
㉛	CC-1220	Conv. Cable (12pM-20pF)	0024T789

Applicable Kit Detail

		Zoom		Focus	
	Kit Name	System	Component	System	Component

For IRS/VRS/WRS Type Lenses

Zoom Servo Only	ZR-1	ZR-1	⑰	--	--
	--	ZR-1D	⑳* ③⑩	--	--
	--	ZR-2(A)	㉑ ㉒ ㉘	--	--
	--	ZR-2(B)	㉑(㉔/㉕/㉖/㉗)**	--	--
Semi-Servo	MS-210	ZR-1	⑰	FR-2	② ⑧ ⑩
	MS-210D	ZR-1D	⑳* ③⑩	FR-2	② ⑧ ⑩
	MS-220	ZR-2(A)	㉑ ㉒ ㉘	FR-2	② ⑧ ⑩
	SS-41-20	ZR-1	⑰	FPS-4	⑫ ⑬
Full Servo	SS-410	ZR-1	⑰	FPS-4	⑭ ⑮
	--	ZR-1D	⑳* ③⑩	FPS-4D	⑫ ⑰ ㉙***
	--	ZR-1D	⑳* ③⑩	FPS-4D	⑬ ⑰ ㉚***
	--	ZR-1D	⑳* ③⑩	FPS-4D	⑭ ⑰ ㉛****
	SS-420	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑫ ⑮
	SS-42-20	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑭ ⑮
	Full Manual	--	FZC-1	⑥ ⑧ ⑪	FR-2(w/o ②) ⑧ ⑩

For IAS/VAS/WAS Type Lenses (Except J33ax)

Zoom Servo Only	ZR-1	ZR-1	⑰	--	--
	--	ZR-1D	⑳* ③⑩	--	--
	--	ZR-2(A)	㉑ ㉒ ㉘	--	--
	--	ZR-2(B)	㉑(㉔/㉕/㉖/㉗)**	--	--
Semi-Servo	MS-210	ZR-1	⑰	FR-2	② ⑧ ⑩
	MS-210D	ZR-1D	⑳* ③⑩	FR-2	② ⑧ ⑩
	MS-220	ZR-2(A)	㉑ ㉒ ㉘	FR-2	② ⑧ ⑩
	SS-41-IAS	ZR-1	⑰	FPS-4	⑮
Full Servo	--	ZR-1D	⑳* ③⑩	FPS-4D	⑰ ㉙
	SS-42-IAS	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑮
	Full Manual	--	FZC-1	⑥ ⑧ ⑪	FR-2(w/o ②) ⑧ ⑩

For J33ax15B IAS, J33ax11B IAS

Zoom Servo Only	--	ZR-1	⑰	--	--
	--	ZR-1D	⑳* ③⑩	--	--
	--	ZR-2(A)	㉑ ㉒ ㉘	--	--
Semi-Servo	--	ZR-1	⑰	FR-2	③ ⑧ ⑩
	--	ZR-1D	⑳* ③⑩	FR-2	③ ⑧ ⑩
	--	ZR-2(A)	㉑ ㉒ ㉘	FR-2	③ ⑧ ⑩
Full Servo	SS-41-IAS	ZR-1	⑰	FPS-4	⑮
	SS-41-IASD	ZR-1D	⑳* ③⑩	FPS-4D	⑰ ㉙
	SS-42-IAS	ZR-2(A)	㉑ ㉒ ㉘	FPS-4	⑮
Full Manual	--	FZC-1	⑦ ⑧ ⑪	FR-2(w/o ③) ⑧ ⑩	

* VTR SW of ZSD-300D does not work with B3 mount Analog Drive Lenses.

** ㉔ is for J9ax5.2B/HJ9x5.5B(I)/J15ax8B/HJ15x8B,


㉕ is for J20ax8B/HJ18x7.8B(I),

㉖ is for J21ax7.8B,

㉗ is for J16ax8B/HJ16x8B

*** This configuration refers to IRS version of J16ax8B/J20ax8B/J21ax7.8B/HJ18x7.8(I).

**** This configuration refers to IRS version of J9ax5.2B/HJ9x5.5B(I)/J15ax8B/HJ15x8B.

 Recommended Kit Configuration for the Analog lenses.

Although the controllers have DD special function switches, these switches do not perform a function when used with Analog Drive lenses. All standard functions will operate as usual.

Lenses for Digital Electronic Cinematography

Canon proudly offers our EC line of zoom and prime lenses, "essential tools" that combine outstanding performance and greater function for our customers. All of the EC lenses utilize Hi-UD (Hi-Index, Ultra Low Dispersion) glass and Fluorite to achieve lower aberrations, while exhibiting very high MTF.

HD-EC Zoom Lens Series

The HD-EC zoom lenses have been refined using Canon's exclusive Power Optical System featuring the "X-Element", a unique system that combines exceptional performance with enhanced specifications. Our latest wide-angle HD-EC zoom lens offers both high specifications and affordability, the HJ8x5.5B KLL-SC.

HD-EC



HD-EC Zoom Lens	HJ21x7.5B-III KLL-SC	HJ11x4.7B-III KLL-SC	HJ8x5.5B KLL-SC
Model Number	HJ21x7.5B-III KLL-SC	HJ11x4.7B-III KLL-SC	HJ8x5.5B KLL-SC
Zoom Ratio	21x	11x	8x
Range of Focal Length	7.5~158mm	4.7~52mm	5.5~44mm
T-Stop	T/2.1	T/2.1	T / 2.1
Angular Field of View	65.2° x 39.6° at 7.5mm	91.2° x 59.8° at 4.7mm	82.2° x 53.1° at 5.5mm
16:9 Aspect Ratio (9.6x5.4mm)	3.5° x 2.0° at 158mm	10.5° x 5.9° at 52mm	12.5° x 7.0° at 44mm
M.O.D. from image plane	1.16m	0.59m	0.59m
Object Dimensions at M.O.D.	120.4 x 67.7cm at 7.5mm	71.4 x 40.2cm at 4.7mm	59.7 x 33.6cm at 5.5mm
16:9 Aspect Ratio 9.6x5.4mm	5.6 x 3.2cm at 158mm	6.2 x 3.5cm at 52mm	7.4 x 4.2cm at 44mm
Size (WxHxL)	130 x 130 x 260mm	95 x 95 x 242mm	95 x 95 x 245.2mm
Weight (Approx)	2.7kg (5.94lbs)	2.0kg (4.4lbs)	2.0kg (4.4lbs)
Macro	Standard	Standard	Standard
Focus Rotation Angle	270°	270°	270°

•M.O.D. = Minimum Object Distance

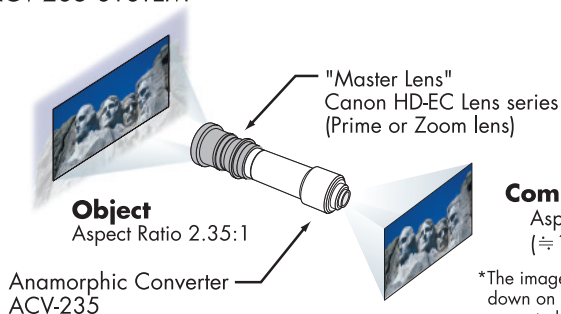
Broadcast ENG/EP Lenses

Revolutionary Anamorphic Converter, ACV-235

The ACV-235 is the world's first Anamorphic Converter developed for the 2/3" image size HDTV format. An Anamorphic Converter is a tool that optically compress a CinemaScope® size image (2.35:1 aspect ratio) to the HD-EC 16:9 aspect ratio (1.78:1). This allows for a CinemaScope® (2.35:1) size image to be recorded by an HD Electronic Cinematography camera.

*CinemaScope® is copyrighted by TWENTIETH CENTURY FOX FILM CORPORATION

ACV-235 SYSTEM



*The image is projected upside down on the CCD, which can be corrected by corresponded cameras.



HD-EC Prime Lens Series

Recently, Canon keeps a line of HD-EC Prime Lenses by improving its existing 5 lenses in both optical and mechanical performance and at the same time, having added the FJs55. The HD-EC Prime Lenses exhibit high MTF, high resolution and high contrast from the center of the image to its extreme edges, an important benefit of Canon's proprietary design techniques. All lenses have traditional film style feel and operation. This includes dual large luminous scales for the focus and iris and industry compatible gear rings.



HD-EC Prime Lens	FJs5	FJs9	FJs14
Focal Length	5mm	9mm	14mm
T-Stop	T/1.7	T/1.5	T/1.5
Image Format Covered	—	9.6 x 5.4mm (16:9)	—
Angular Field of View (16:9)	87.7°x 56.7°	56.1°x 33.4°	37.8°x 21.8°
Angular Field of View (4:3)	82.7°x 66.8°	52.1°x 40.3°	34.9°x 26.5°
M.O.D. from image plane	0.5m	0.45m	0.4m
Object Dimensions at M.O.D. (16:9)	59.8cm x 33.6cm	32.5cm x 18.3cm	18.9cm x 10.6cm
Object Dimensions at M.O.D. (4:3)	54.8cm x 41.1cm	29.8cm x 22.4cm	17.3cm x 13.0cm
Size (WxHxL)	95.0x95.0x177.0 mm	95.0x95.0x134.5 mm	95.0x95.0x134.5 mm
Weight(approx)	1.5kg (3.3lbs)	1.1kg (2.42lbs)	1.1kg (2.42lbs)
Focus Rotation Angle	280°	280°	280°

•M.O.D. = Minimum Object Distance



HD-EC Prime Lens	FJs24	FJs35	FJs55
Focal Length	24mm	35mm	55mm
T-Stop	T/1.5	T/1.5	T/1.6
Image Format Covered	—	9.6 x 5.4mm (16:9)	—
Angular Field of View (16:9)	22.6°x 12.8°	15.6°x 8.8°	10.0°x 5.6°
Angular Field of View (4:3)	20.8°x 15.7°	14.3°x 10.8°	9.1°x 6.9°
M.O.D. from image plane	0.45m	0.5m	0.5m
Object Dimensions at M.O.D. (16:9)	13.6cm x 7.7cm	10.8cm x 6.1cm	6.8cm x 3.8cm
Object Dimensions at M.O.D. (4:3)	12.5cm x 9.4cm	9.9cm x 7.4cm	6.2cm x 4.7cm
Size (WxHxL)	95.0 x 95.0 x 134.5mm	95.0 x 95.0 x 134.5mm	95.0 x 95.0 x 134.5mm
Approx. Mass	1.1kg (2.42lbs)	1.1kg (2.42lbs)	1.1kg (2.42lbs)
Focus Rotation Angle	280°	280°	280°

•M.O.D. = Minimum Object Distance

Features of the New FJs Prime Lens Series

● Design

Responding to requests from the market, Canon has standardized the diameter of the front lens of all six FJs prime lenses at 95mm, which enables the same matte box or filters to be used with all of the lenses.

● Accurate Operation

One of the most remarkable features of the FJs series is the dramatically increased range of the Focus Rotation Angle. In order to provide the highest focusing accuracy possible, the rotation angle of the focus ring has been increased to 280°. Another important feature of the FJs series is the adjustable back focus (F.B.). The back focus of the lenses can be adjusted in a range of +/-0.3mm, allowing for increased focus accuracy in all circumstances.

● High Optical Performance

By making the best use of the latest computer simulating system, the FJs prime lens series has reduced distortions and brought chromatic flare to a zero level, at the same time maintaining color balance throughout the complete series to avoid picture inconsistency.

Pro-video Lenses & Remote Control Lenses

- Canon offers a variety of Pro-video ENG lenses that incorporate Canon's original IFpro, internal focusing system (refer to page 8).
- The Canon Remote Control Series offers a wide variety of lenses and accessories that have been designed for various applications such as broadcasting, teleconference, distance learning and other remote control purposes. The lenses provide quiet and fast servo control of Zoom, Focus and Iris.
- Now, all IFpro ENG lenses are equipped with Canon's exclusive shuttle shot function and have become even more useful.



Pro-video ENG Lenses



*Remote Control Lens
for Pro-video use*



*Remote Control Lens
for Broadcast Use*

Pro-video ENG Lenses

IF pro



YJ20x8.5B KRS

IF pro



YJ20x8.5B IRS

IF pro



YJ13x6B KRS

IF pro



YJ13x6B IRS

Zoom Ratio	20x	20x	13x	13x
Image Size	2/3"	2/3"	2/3"	2/3"
Built-in Extender	—	2.0x	—	2.0x
Range of Focal Length (with Extender)	8.5~170mm	8.5~170mm 17~340mm	6~78mm	6~78mm 12~156mm (2.0x)
Maximum Relative Aperture (with Extender)	1:1.8 at 8.5~113.3mm 1:2.7 at 170mm	1:1.8 at 8.5~113.3mm 1:2.7 at 170mm 1:3.6 at 17~226.7mm (2.0x) 1:5.4 at 340mm	1:2.0 at 6~58mm 1:2.7 at 78mm	1:2.0 at 6~58mm 1:2.7 at 78mm 1:4.0 at 12~116mm (2.0x) 1:5.4 at 156mm
Angular Field of View (with Extender)	4:3 Aspect Ratio (8.8x6.6mm) 54.7°x42.4° at 8.5mm 3.0°x2.2° at 170mm	54.7°x42.4° at 8.5mm 3.0°x2.2° at 170mm 29.0°x22.0° at 17mm (2.0x) 1.5°x1.1° at 340mm	72.5°x57.6° at 6mm 6.5°x4.8° at 78mm	72.5°x57.6° at 6mm 6.5°x4.8° at 78mm 40.3°x30.8° at 12mm (2.0x) 3.2°x2.4° at 156mm
M.O.D from Lens Front	0.9m(10mm with Macro)	0.9m(10mm with Macro)	0.4m(10mm with Macro)	0.4m(10mm with Macro)
Object Dimensions at M.O.D (with Extender)	4:3 Aspect Ratio (8.8x6.6mm) 85.2x63.9cm at 8.5mm 4.4x3.3cm at 170mm	85.2x63.9cm at 8.5mm 4.4x3.3cm at 170mm 42.6x32.0cm at 17.0mm (2.0x) 2.2x1.7cm at 340mm	68.1x51.1cm at 6mm 5.0x3.8cm at 78mm	68.1x51.1cm at 6mm 5.0x3.8cm at 78mm 34.1x25.6cm at 12mm (2.0x) 2.5x1.9cm at 156mm
Approx.Size(WxHxL)	163.3x103x170.4mm	163.3x103.0x195.4mm	165.4x105.1x211.7mm	165.4x105.1x234.8mm
Approx.Mass	1.17kg (2.58lbs)	1.39kg (3.06lbs)	1.54kg (3.39lbs)	1.74kg (3.83lbs)
Macro	Yes	Yes	Yes	Yes
SHUTTLE HOT	Yes	Yes	Yes	Yes

Reference: The following is the lens angle (without Shrinker) in the 4:3 mode of switchable cameras as explained on page 9.

Angular Field of View (with Extender)	4:3 mode of Most Switchable Cameras (7.2x5.4mm)	45.9°x35.2° at 8.5mm 2.43°x1.82° at 170mm	45.9°x35.2° at 8.5mm 2.4°x1.8° at 170mm 23.9°x18.0° at 17.0mm (2.0x) 1.2°x0.9° at 340mm	61.9°x48.5° at 6mm 5.29°x3.97° at 78mm	61.9°x48.5° at 6mm 5.29°x3.97° at 78mm 33.4°x25.4° at 12mm (2.0x) 2.64°x1.98° at 156mm
--	--	--	--	---	---

Crossover Solutions for 2/3" Pro-video YJ20x8.5B

(Please refer to page 9 for details about Switchable cameras and Crossover technology.)

Canon has developed two affordable optical solutions to accommodate the increasing number of 16:9/4:3 switchable 2/3" Pro-video cameras.

The first solution is the W80Y-85 Crossover Adaptor, a specially designed compact front mounted wide converter for the YJ20x8.5B/YJ19x9B, which makes the master lens wider by a factor of 0.8x. When you use the W80Y-85 on the YJ20x8.5B/YJ19x9B in the 4:3 mode of a switchable camera, it performs the Crossover function restoring the tele-side shifted image to a normal field of view as would be found on a conventional 4:3 camera. There is no light loss when using the W80Y-85. (The M.O.D becomes 0.58m)



W80Y-85

The second solution is the YJ20x8.5B VRS which has a built-in "Shrinker". When the "Shrinker" is in place, the tele-side shifted image is restored to the normal field of view as would be found on a conventional 4:3 camera. The VRS "Shrinker" performs no function in the 16:9 mode while the W80Y-85 is usable in both the switchable 4:3 mode and the 16:9 mode.

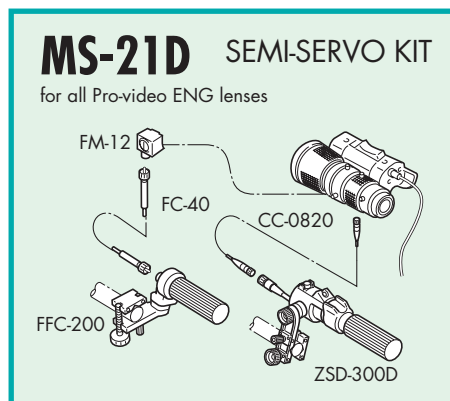
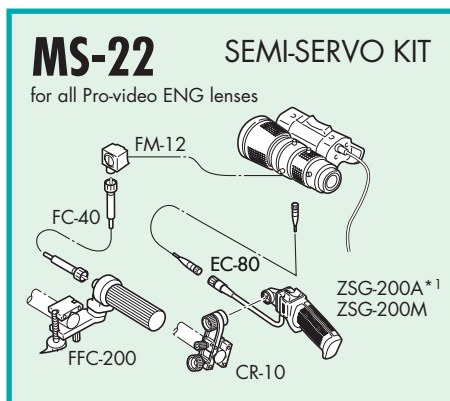
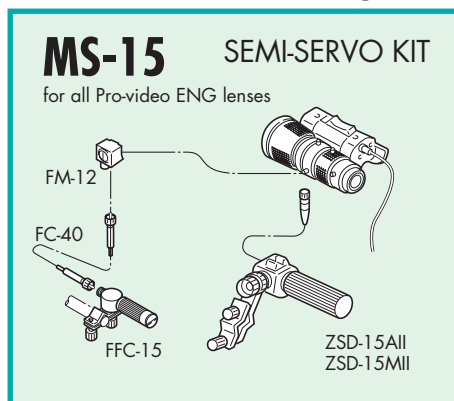


YJ20x8.5B VRS

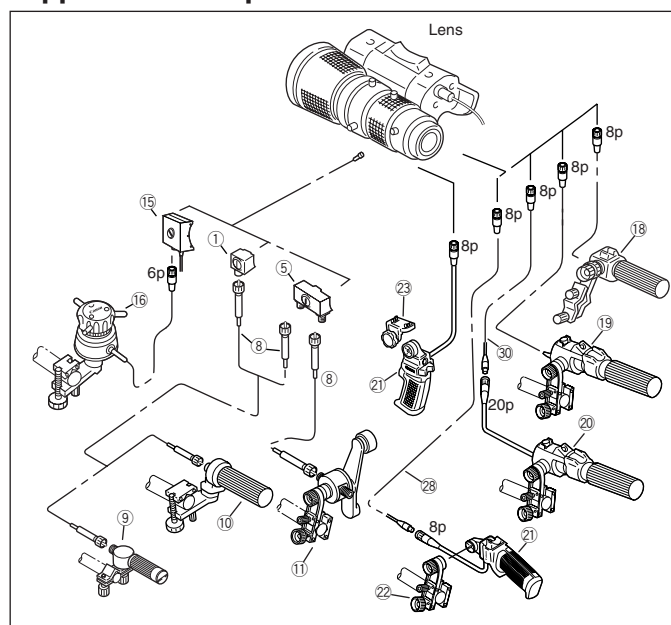


CROSSOVER

Recommended Kit Configuration



Applicable Component Detail



#	Unit	Description	CODE
①	FM-12	Flex Focus Module	1824A012
⑤	FM-70	Flex Dual Module	0002T071
⑧	FC-40	Flex Cable	1824A010
⑨	FFC-15	Flex Focus Controller	1824A024
⑩	FFC-200	Flex Focus Controller	1824A014
⑪	FZC-100	Flex Zoom Controller	1824A021
⑮	FPM-77	Focus Positional Servo Module	1824A020
⑮	FPD-400	Focus Positional Demand (※1)	1824A018
⑮	ZSD-15AⅡ/MⅡ (A or M types, depends on applicable camera)	Zoom Demand (※1)	A 1824A070
			M 1824A071
⑲	ZSD-300A/M (A or M types, depends on applicable camera)	Zoom Demand (※1)	A 1824A066
			M 1824A067
⑳	ZSD-300D	Zoom Demand	1824A123
㉑	ZSG-200A/M (A or M types, depends on applicable camera)	Zoom Servo Grip (※1)	A 1824A068
			M 1824A069
㉒	CR-10	Clamper	1824A007
㉓	GA-70	Grip Adapter	0018T531
㉔	EC-80	Zoom Extension Cable (8P)	1824A009
㉕	CC-0820	Conv. Cable (8p/M-20pF)	1824A127

(※1) ZSD-15AⅡ, ZSD-300A/M, ZSG-200A and FPD-400 is not available

Applicable Kit Detail

		Zoom		Focus	
	Kit Name	System	Component	System	Component

for KRS/IRS/VRS Type of Pro-video ENG Lenses

Zoom Servo Only	--	ZSD-15	⑮**	--	--
	--	ZR-1	⑰	--	--
	--	ZR-2(A)	⑳ ㉒ ㉓	--	--
	--	ZR-2(B)	㉒ ㉓*	--	--
Semi-Servo	MS-15	ZSD-15	⑮**	FRC-15	① ⑧ ⑨**
	MS-21	ZR-1	⑰	FR-2	① ⑧ ⑩
	MS-21D	ZR-1D	㉒ ㉓	FR-2	① ⑧ ⑩
	MS-22	ZR-2(A)	㉒ ㉒ ㉓	FR-2	① ⑧ ⑩
Full Servo	--	ZR-1	⑰	FPS-4	⑮ ⑰*
	--	ZR-2(A)	㉒ ㉒ ㉓	FPS-4	⑮ ⑰*
Full Manual	FZC-1	FZC-1	⑤* ⑧ ⑪	FR-2(w/o ①)	⑧ ⑩

****In USA, (18) & (9) are available only as MS-15 kit configuration and not as individual product.**

Recommended Kit Configuration for the Pro-video ENG lenses.

Remote Control Lens Series

The Canon Remote Control Series offers a wide variety of lenses and accessories that have been designed for various applications such as broadcasting, teleconference, distance learning and other remote control purposes. The lenses provide quiet and fast servo control of Zoom, Focus and Iris.

Broadcast Applications :

HDTV/SDTV



HJ18ex28B ITS-ME



HJ22ex7.6B ITS-ME



HJ17ex7.6B ITS-ME



HJ14ex4.3B ITS-ME

Zoom Ratio	18x	22x	17x	14x
Image Size	2/3"	2/3"	2/3"	2/3"
Built-in Extender	2.0x	2.0x	2.0x	2.0x
Range of Focal Length (with Extender)	28~500mm 56~1000mm (2.0x)	7.6~168mm 15.2~336mm (2.0x)	7.6~130mm 15.2~260mm (2.0x)	4.3~60mm 8.6~120mm (2.0x)

HDTV/SDTV



KJ17ex7.7B ITS-ME



J22ex7.6B ITS-ME



J11ex4.5B ITS-ME

Zoom Ratio	17x	22x	11x
Image Size	2/3"	2/3"	2/3"
Built-in Extender	2.0x	2.0x	2.0x
Range of Focal Length (with Extender)	7.7~131mm 15.4~262mm (2.0x)	7.6~168mm 15.2~336mm (2.0x)	4.5~50mm 9~100mm (2.0x)

•Please refer to page 22-25 for more detailed specifications.

*The 2X extender of ITS-ME model is manually operated. ITS-RE model which has a motorized 2X extender is also available.

Pro-video Applications :

HDTV/SDTV



KJ20x8.5B KTS



KH19x6.7-II KTS*1



KT20x5B KTS

Zoom Ratio	20x	19x	20x
Image Size	2/3"	1/2"	1/3"
Built-in Extender	—	—	—
Range of Focal Length	8.5~170mm	6.7~127mm	5~100mm

SDTV



YJ20x8.5B ITS-RE



YJ20x8.5B KTS



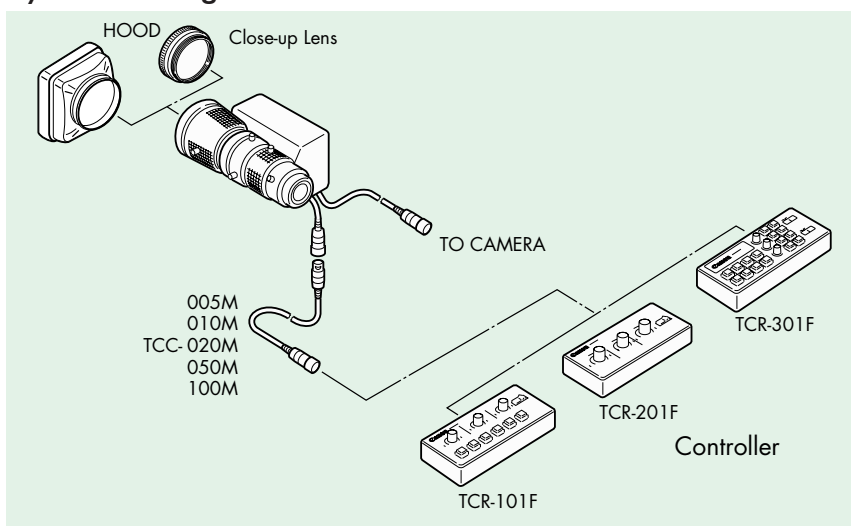
YJ13x6B KTS

Zoom Ratio	20x	20x	13x
Image Size	2/3"	2/3"	2/3"
Built-in Extender	2.0x	—	—
Range of Focal Length (with Extender)	8.5~170mm 17~340mm (2.0x)	8.5~170mm	6~78mm

Control Accessories for Remote Control Lenses

The Canon Remote Control TV Lenses and standard controller system are engineered to satisfy your image capture needs. These broadcast quality products can be used in applications which differ from typical video production applications, such as fast and quiet servo operations. The Canon Remote Control TV Lenses accept 3 types of Canon standard controllers, as well as the standard remote control cables, which are designed to provide different types of zoom, focus and iris remote control. These lenses are also available with a simple interface for use with custom controllers.

System Configuration



Controller

Speed Servo Controller



TCR-101F

Positional Servo Controller



TCR-201F

8 Position Preset Controller



TCR-301F

Close-up Lens

(not available for HJ18ex/HJ14ex)

Four types (82CL-UP800H / 82CL-UP1300H / 105CL-UP900H / 105CL-UP800HD) are available.

*Please refer to page 42 for the applications

Remote Controller

Three types (TCR-101F, TCR-201F, TCR-301F) are available.

Connecting Cable

5m, 10m, 20m, 50m and 100m cables are available.

Maximum cable length is 150m by connection of these cables.

External Extender (For 2/3" Lens Only)

A 2X extender is available for telephoto shooting.

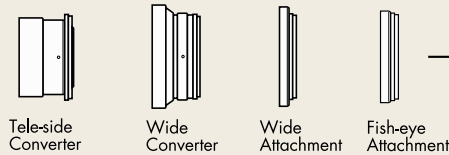
For the ITS-RE model of the Broadcast Remote Control Lenses and for the YJ20x8.5B ITS, the 2x extender is motorized and can be remote controlled.

*Please inquire to Canon Sales Office for extender remote control interface.

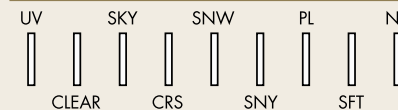
Optical Accessories for SDTV and HDTV ENG/EFP Lenses

SYSTEM

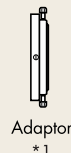
1.CONVERTERS/ATTACHMENTS



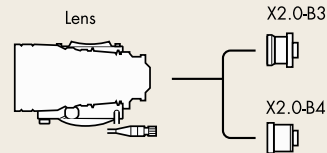
2.FILTERS



3.CLOSE UP LENSES



4.EXTENDERS



*1: Most Canon Converters and Attachments use a separate adaptor ring as shown in the table on page 45, which allow compatibility between several lens models. The W80Y-85 is special Wide Converter and is exclusive to certain lens models as shown in the table on page 45.

*2: Some lens models allow for the filter to be attached to the threaded lens barrel, in other models, the filter is attached to the threaded hood unit. For lens model filter size compatibility, please refer to page 47.

1.CONVERTERS/ATTACHMENTS

TELE-SIDE CONVERTER



- Focal length is shifted to the telephoto side by a factor of 1.5x.
- F No. of the original lens is not affected.
- Only the telephoto side of the lens can be used, the picture corners are eclipsed at wide angle.
- The minimum object distance becomes 2.25 times that of the original lens.



	M.O.D	Eclipse Point
HJ22ex7.6B	1.9m	f:85mm
KJ17ex7.7B	1.35m	f:60mm
YJ20x8.5B	2.00m	f:80mm

WIDE CONVERTER



- Focal length becomes wider by a factor of 0.8x that of the original lens with the W80 / W80Y-85.
- F No. of the original lens is not affected.
- The minimum object distance becomes 0.64 times with the W80 / W80Y-85.



Change in focal length

	Master Lens	With Wide Con.
HJ22ex7.6B	7.6-168mm	6.1-134mm
KJ17ex7.7B	7.7-131mm	6.2-104.8mm
YJ20x8.5B	8.5-170mm	6.8-136mm

WIDE ATTACHMENT



- The zoom lens becomes a wider fixed focal length lens with the wide attachment.
- The focal length is widened by a factor of 0.75x that of the original lens.
- Focus is adjusted by use of the macro lever.



Change in focal length

	Master Lens	With Wide Attach.
HJ22ex7.6B	7.6-168mm	5.7mm
KJ17ex7.7B	7.7-131mm	5.8mm
YJ20x8.5B	8.5-170mm	6.4mm

FISH-EYE ATTACHMENT



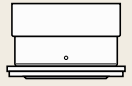




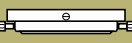





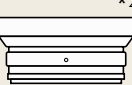





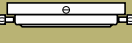










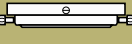
















- The zoom lens becomes a fish-eye fixed focal length lens (distorted image) with the fish-eye attachment.
- The focal length is widened by a factor of approximately 0.6x that of the original lens.
- Focus is adjusted by use of the macro lever.



Change in focal length

	Master Lens	With Fish-Eye
HJ22ex7.6B	7.6-168mm	4.6mm
KJ17ex7.7B	7.7-131mm	4.6mm
YJ20x8.5B	8.5-170mm	5.1mm

[Applications of SDTV and HDTV Adaptor Type Converters / Attachments]

CONVERTER/ ATTACHMENT TYPE		MODEL NAME	CODE	APPLICABLE LENS				
				YJ20x8.5B YJ19x9B YH19x6.7 KJ20x8.5B*1 KH20x6.4*1 KT20x5*1	KJ17ex7.7B*1 KJ16ex7.7B*1 KJ20x8.5B*1 KH16ex5.7*1 KH20x6.4*1 KT20x5*1 J17ex7.7B J17ax7.7B YJ20x8.5B YJ19x9B YH19x6.7	HJ17ex7.6B KJ17ex7.7B KJ16ex7.7B KJ20x8.5B KH16ex5.7 KH20x6.4 KT20x5	J22ex7.6B J21ax7.8B KJ21ex7.7B*1 KH21ex5.7*1	HJ22ex7.6B HJ21ex7.8B HJ17ex7.7B KJ21ex7.6B KH21ex5.7
Front Lens Diameter				φ 85mm		φ 98mm		
Tele-side Converter		T15-II	1823A005					
		T15HD	0025T799					
		Adaptor85II	1824A002					
		Adaptor98II	1824A004					
Wide Converter	 *2	W80Y-85	1823A009					
		W80-ⅢB	1823A006					
		W80HD	1823A094					
		Adaptor85II	1824A002					
		Adaptor98II	1824A004					
Wide Attachment		WA75-II	1823A008					
		WA75HD	1823A095					
		Adaptor85II	1824A002					
		Adaptor98II	1824A004					
Fish-eye Attachment		FEA-ⅢB	1823A011					
		FEA-HD	1823A099					
		Adaptor85II	1824A002					
		Adaptor98II	1824A004					

*1 The HD quality accessories offer higher optical performance.

*2 The drawing is an image of the W80-III B.

• When purchasing, please specify model name of both Body and Adaptor.

• It is possible to use Body and Adaptor in different combinations. But it is impossible to use in combinations not shown in above table.

• Focus servo operation is possible with IF lenses only.

[Mount Converters for Different Image Format Size Cameras]

Canon offers a variety of Mount Converters to be used between a lens and a camera of different image format sizes.

Each converter will extend the effective Angular Field of View of the associated lens according to the Shift Ratio listed below.

Converter	Image Size Conversion			Electronic Conversion
	Lens *3	Camera	Shift Ratio to Telephoto Side	
LO-32BMT	2/3" B4 Mount	1/2" SONY *4	approx. 1.4x	-
LCV-40B	2/3" B4 Mount	1/2" Standard Mount *5	approx. 1.4x	-
LCV-42T	2/3" B4 Mount	1/3" Standard Mount	approx. 1.8x	-
LCV-41E	2/3" B4 Mount	SONY PMW-EX3	approx. 1.4x	Lens Cable(12pin) → EX3 Hot Shoe(14pin)
LCV-20E	1/2" *6	SONY PMW-EX3	-	Lens Cable(12pin) → EX3 Hot Shoe(14pin)

*3 The converters are to be used with lenses weighing less than 2.0kg (4.4lbs)

*4 SONY's Hot Shoe mount camera, excluding PMW-EX3

*5 1/2" Camera of standard type mount (Panasonic, JVC, Grass Valley)

*6 Only applicable to KH10ex/KH16ex/KH21ex. The other 1/2" mount lenses are not available.



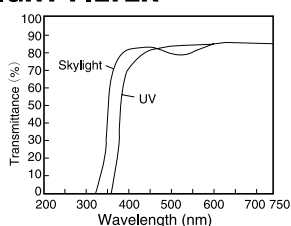
LO-32BMT
LCV-40B
LCV-42T



LCV-41E
LCV-20E

2. FILTERS

UV/CLEAR/SKY LIGHT FILTER



- A UV (ultraviolet) filter is nearly colorless. It absorbs short-wavelength ultraviolet rays that the naked eye cannot see.
- A Skylight Filter has a light pinkish color. Used when shooting on clear days, it removes ultraviolet, and prevents natural light from giving a bluish-green cast to shaded foliage etc.
- These filters are also advisable to protect the front lens surface.

CROSS/SNOW CROSS/SUNNY CROSS FILTER



- A Cross Filter creates a cross or star of light by scattering rays from a strong light source in the subject in a radial pattern. The brighter and more pointlike the subject is, the better the effect is. Cross Filters are often used to enhance night scenery or stage show broadcasts.

<Types of Cross Filter>

- Cross Filter ; Scatters light in a four-pointed cross.
- Snow Cross Filter ; Scatters light in a six-pointed star.
- Sunny Cross Filter ; Scatters light in an eight-pointed star.

POLARIZED LIGHT FILTER



- A polarizer is used to intercept light reflected from the surface of water or glass.
- A polarizer is screwed into the threads of the hood, turned, and stopped in the position in which the reflected light is removed.

SOFTON FILTER



- A Soft-focus Filter has a mat-like surface that imparts a soft, misty effect to the entire picture.
- Soft-focus Filters are frequently used for lyric scenery shots.

ND4/ND8 FILTER



- An ND (neutral density) Filter uniformly reduces light of all wavelengths which enters a lens.
- It is used when the subject is too bright for the light to be adjusted by the diaphragm alone.
- An ND Filter is also effective to create a shallow depth of field.

ND filter type	Transmittance	Density
ND4	25%	0.6
ND8	12.5%	0.9

3. CLOSE-UP LENSES

CLOSE-UP LENS



- A close-up lens is used to shorten the M.O.D. of the master lens for close-up shooting.
- The maximum object distance becomes the focal length of the close-up lens.
- The minimum object distance is calculated by the following formula.

$$\text{New minimum object distance} = \frac{f_c \times S}{f_c + S}$$

$$f_c = \text{Focal length of the close-up lens}$$

$$S = \text{M.O.D. of the master lens}$$

Imaging range for J17ex7.7B, and YJ20x8.5B with close-up lenses

	82CL-UP800H				82CL-UP1300H			
	Tele end : 131mm		Wide end : 7.7mm		Tele end : 131mm		Wide end : 7.7mm	
KJ17ex7.7B (16:9)	Focusing Scale(mm)		∞		∞		∞	
	Object Distance(mm)		800		1300		1300	
	Object Dimensions(mm)		58x33		95x53		1634x919	
YJ20x8.5B (4:3)	Focusing Scale(mm)		∞		∞		∞	
	Object Distance(mm)		800		1300		1300	
	Object Dimensions(mm)		41x31		67x50		1341x1006	

Model	Code	APPLICABLE LENSES
82CL-UP800H	1823A041	J17ex7.7B, J17ax7.7B, YJ20x8.5B, YJ19x9B, KJ17ex7.7B, KJ16ex7.7B, KJ20x8.5B, KH16ex5.7, KH20x6.4, KT20x5
82CL-UP1300H	1823A042	J17ex7.7B, J17ax7.7B, YJ20x8.5B, YJ19x9B, KJ17ex7.7B, KJ16ex7.7B, KJ20x8.5B, KH16ex5.7, KH20x6.4, KT20x5
105CL-UP900H	1823A043	J22ex7.6B, J21ax7.8B, KJ21ex7.6B*, KH21ex5.7*
105CL-UP800HD	1823A096	HJ22ex7.6B, HJ21ex7.8B, HJ17ex7.7B, KJ21ex7.6B, KH21ex5.7

* The HD quality accessories offer higher optical performance.

[Application of Filters]

FILTER TYPE	MODEL NAME	CODE	APPLICABLE LENSES						
			HJ18ex28B HJ21ex7.5B HJ21x7.5B HJ14ex4.3B HJ11ex4.7B HJ11x4.7B J11ex4.5B J11ax4.5B KJ10ex4.5B KH10ex3.6	HJ40x14B HJ40x10B	J35ex15B J35ex11B J33ax15B J33ax11B H33ax11 PH33ax8.5B	HJ18x7.8B KJ13x6B KH13x4.5 YJ13x6B YJ12x6.5B YH12x4.8	HJ22ex7.6B HJ21ex7.8B HJ21x7.8B HJ17ex7.7B J22ex7.6B J21ax7.8B KJ21ex7.6B KH21ex5.7	HJ17ex7.6B J17ex7.7B KJ17ex7.7B KJ16ex7.7B KH16ex5.7 KJ20x8.5B KH20x6.4 KT20x5 YJ20x8.5B YJ19x9B YH19x6.7	YH16x7
Hood Unit Thread Size			127mm P0.75	——	——	105mm P1	105mm P1	——	82mm P0.75
Lens Barrel Thread Size			——	127mm P0.75	125mm P1	——	94mm P1	82mm P0.75	72mm P0.75
U V	UV/127P0.75	1823A083	●	●					
	UV/105P1	1823A022				●	●		
	UV/94P1	1823A021					●		
	UV/82P0.75	1823A030						●	●
Clear	CL/127	1823A093	●	●					
	CL/125	1823A044			●				
Sky Light	SKY/105P1	1823A023				●	●		
	SKY/82P0.75	1823A031						●	●
Cross	CRS/127P0.75	1823A085	●	●					
	CRS/105P1	1823A024				●	●		
	CRS/82P0.75	1823A032						●	●
Snow Cross	SNW/127P0.75	1823A087	●	●					
	SNW/105P1	1823A047				●	●		
	SNW/82P0.75	1823A034						●	●
Sunny Cross	SNY/127P0.75	1823A088	●	●					
	SNY/105P1	1823A025				●	●		
	SNY/82P0.75	1823A033						●	●
Polarized Light	PL/127P0.75	1823A090	●	●					
	PL/105P1	1823A028				●	●		
	PL/82P0.75	1823A038						●	●
Softon	SFT/127P0.75	1823A089	●	●					
	SFT/105P1	1823A027				●	●		
	SFT/82P0.75	1823A037						●	●
ND	ND8/127P0.75	1823A086	●	●					
	ND4/82P0.75	1823A035						●	●
	ND8/105P1	1823A026				●	●		
	ND8/82P0.75	1823A036						●	●

●Note; Hood Unit Thread Filter and Lens Barrel Thread Filter cannot be mounted together because of mechanical interference.

4.EXTENDERS



- An extender X2.0-B4 is mounted between the camera and the lens to enlarge the image of the subject.
- It doubles the focal length of the master lens, making it into a more telephoto lens.
- The 2.0x Extender also doubles the F-number.

	Master Lens	With Extender
YJ20x8.5B		
Focal length	8.5-170mm	17-340mm
F-number	1.8-2.7	3.6-5.4

*Only for 2/3" lenses

Model	Code	APPLICABLE LENSES
X2.0-B3	1823A001	Applicable to all B3 type mount Canon 2/3" lenses.
X2.0-B4	1823A002	Applicable to all B4 type mount Canon 2/3" lenses.



North & South America

Canon U.S.A., Inc.

Broadcast and Communications Div. (Headquarters)
65 Challenger Road, Ridgefield Park, NJ 07660
Tel: (201) 807-3300 / (800) 321-4388
Fax: (201) 807-3333
Email: bctv@cusa.canon.com
<http://www.canonbroadcast.com/>

Chicago

100 Park Blvd. Itasca, IL 60143
Tel: (630) 250-6236 Fax: (630) 250-0399

Atlanta

5625 Oakbrook Pkwy. Norcross, GA 30093
Tel: (770) 849-7890 Fax: (770) 849-7888

Los Angeles

15955 Alton Parkway Irvine, CA 92618
Tel: (949) 753-4330 Fax: (949) 753-4337

Dallas

3200 Regent Blvd. Irving, TX 75063
Tel: (972) 409-8871 Fax: (972) 409-8869

Latin America

Tel: (954) 349-6975 Fax: (201) 807-3333

Canada

Canon Canada, Inc.

Broadcast and Communications Div.
6390 Dixie Road
Mississauga, Ontario, L5T 1P7, Canada
Tel: (905) 795-2012 Fax: (905) 795-2140

Europe/Africa/Middle East

Canon Europa N.V.

Broadcast and Communications Div.
Bovenkerkerweg 59-61
1185 XB Amstelveen
Tel: +31(0)20-5458905 Fax: +31(0)20-5458203
Email: tvprod@canon-europe.com
<http://www.canon-europe.com/tv-products>

Australia

Canon Australia Pty. Ltd.

Optical Products Division
1 Thomas Holt Drive, North Ryde, NSW 2113, Australia
Tel: +61(0)2-9805-2000 Fax: +61(0)2-9805-2444

China

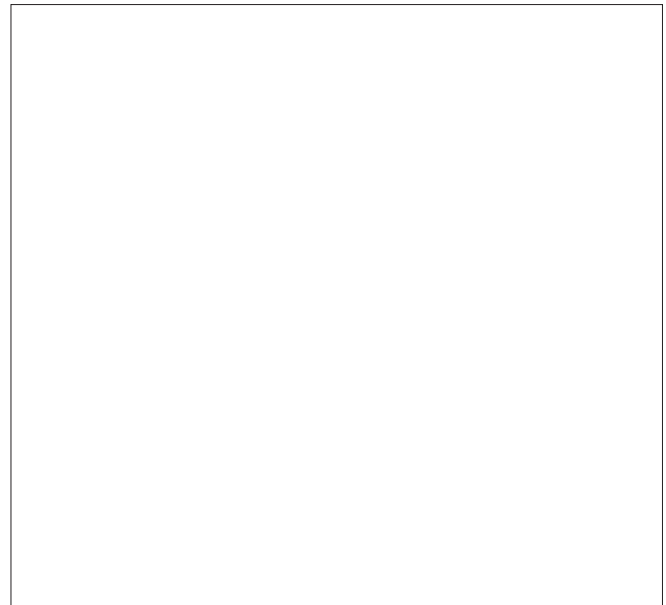
Canon (China) Co., Ltd.

Optical Products Division
15F Jinbao Building No.89 Jinbao Street
Dongcheng District, Beijing 100005, China
Tel: 86-10-85139999 Fax: 86-10-85139902
<http://www.canon.com.cn>

Asia/Japan

Canon Inc.(Broadcast Equipment Group)

23-10, Kiyohara-Kogyo-Danchi, Utsunomiya-shi,
Tochigi-ken, 321-3298, Japan
Tel: +81(0)28-667-8669 Fax: +81(0)28-667-8672
<http://www.canon.com/bctv/>



Canon

- The size and weight of all lenses within this brochure may vary according to the applicable camera models.
- Specifications subject to change without notice